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INDEX OF CONTENTS.

JANUARY TO JUNE, 1923.

(FOR SPECIAL HEADINGS SEE UNDER ANSWERS TO CORRESPONDENTS; BOOKS; CERTIFICATED PLANTS, ETC.; NURSERY NOTES; OBITUARY; PLANTS, NEW; SOCIETIES; AND ILLUSTRATIONS.)

A

ABERDEEN UNIVERSITY: forest lands for, 86; proposed forestry chair at, 296; teaching of forestry at, 240
Aberdeen's Parks superintendent, 330
Achillea argentea, 183; A. Kellereri, long flowering of, 291
Aethionema iberideum, 195
Afforestation of Dartmoor, 72
Africa, Central, gardening in, 288
Africa, South: fruit industry of, 295; the National Botanic Garden of, 281
Aggett, Mr. W. H., 254.
Agricultural research, special grants for, 239
Agricultural scholarships for rural workers, 169
Agricultural tribunal of investigation, 3
Agriculturists to visit Sweden, British, 282
Allamanda, 5
Allotments in Scotland, 16, 99
Alpine garden, the, 21, 34, 47, 75, 91, 131, 157, 173, 183, 195, 245, 257, 285, 299, 319, 361
Alpine plants at Kew, 319
Aluminum sulphate in soils for Rhododendrons, value of, 281
Amelanchier in a Cumberland garden, a fine, 269
America: notes from, 51, 354; Poppies for Memorial Day in, 240
Amsterdam: horticultural and agricultural exhibition at, 128; International Horticultural Congress at 155, 170
Anacyclus formosus, the propagation of, 361
Anemone, 195
Angraecum mirabile, 17, 35
Annelids of Iceland and the Faroes, 134

Answers to Correspondents:—**A**cers, propagating Japanese, 154; Adiantum pedatum Klondike, 266; Ampelopsis Veitchii, 266; Apple tree: diseased, 358; eggs on, 279; Arum Lilies: 266; abnormal, 180, 276; diseased, 279; Arundina chinensis, 168; Ants, destroying large red, 327; Asparagus Sprengeri discoloured, 206; **B**amboos, 252; Beech trees infested with a white fungus, 28; Begonia Gloire de Lorraine failing, 238; Blackberries, establishing, 168; Bricks, red, for garden paths, 206; "British Flora," value of old, 180; British Gardeners' Association, 70; Broccoli failing to form good heads, 180; **C**acti, 28; Camellias: failing to flower, 70; unhealthy, 180; Carnations, perpetual flowering, 312; Cattleya Loddigesii, 140; Celeriac, cultivation of, 266; Celery, 180; Charcoal, 358; Chrysanthemum shoots dying, 126; Chrysanthemums: late flowering, 42; treatment of, 222; Concrete, reinforced, for glasshouse construction, 112; Copper sulphate and pond weeds, 84; Cottager, under gardener, and amateur gardener, definition of, 56; Cucumbers, diseased, 206; Cyaniding: 42; in Peach house, 14; Cyclamens, old corms of, 266; **D**aphne Cneorum, 140; Dendrobiums, diseased, 279, 344; Dianthus caesius, 154; Digging, methods of 279; Dracaena, unhealthy, 42; **E**ggs on Apple tree, 279; Eucharis grandiflora, 140; **F**ern fronds: browned, 154; shrivelled, 358; Ferns, diseased, 358; Figs and Tomatos in same house, 28; Flame Flower, the, 279; Flannel weed, 327; Fuchsias, failing, 280; **G**ardeners' hours, 42; Gardeners' notice: 70, 327; and possession of cottage, 42; Gardeners' wages: 98; during illness, 42; Gardening Society committee, 168; Geranium, exhibiting a new, 206; Gooseberries eaten by an insect, 266; Gooseberry bushes, wash for, 328; Gorse, seedling, 312; Grafting of Vines, bottle, 98; Grape spot disease, 28; Grapes: diseased, 358; failure with Muscat, 266; out-of-door, 28; Greenhouse plants for cut blooms between October and March, 344; Greens, formation of putting and clock golf, 293; Grubs attacking seedlings, 266; "**H**anbury's Gardening, 1769," 112; Herbaceous and alpine palnts, commercial propagation of, 70; Hydrangea hortensis, forcing, 28; **J**ournals, horticultural, 238; Judas Tree, the, 98; **L**ackey Moth eggs, 279; Landscape architect, 168; Lawn, moss in a, 126; Lawn mower, 112; Leather jackets attacking seedlings, 266; Lilies, Arum, 180, 266, 276; Lime sulphur, use of, 266; Linum narbonense, 140; **M**anure for Pelargoniums, 266; Market crops: 294; for unheated greenhouse, 56; Market nursery, 28; Melon: Stanley, seeds of, 42; the Musk or Cantaloupe, 266; Mice, rabbits and slugs, poison for, 327; Mildew on Vine leaves, 327; Millipedes in vinery border, 294; Moss in a lawn, 126; Myrobella stocks, diseased, 327; **N**ational Diploma in Horticulture, 84; Nectarine fruits malformed, 280; Nursery, rateable value of, 344; **O**ak leaves, insect on, 252; Oats, average yield and prices of, 84; Onions, diseases of, 14; Onosmodium Thurberi, 180; Orchids, propagating epiphytal, 327; Oxalis tubers, 126; **P**aeonies, failure of herbaceous, 180; Painting hot water pipes, 14; Peach and Nectarine leaves blistered, 327; Peach house, cyaniding a, 14; Peach leaves, shot-hole fungus on, 328; Pelargonium leaves: spotted, 180; unhealthy, 98; Pelargoniums, manure for, 266; Pentstemons, unhealthy, 206; Plant-collecting expeditions in Asia, recent, 42; Plant names, pronunciation of, 168; Plant propagator, 192; Plants for cut blooms between October and March, greenhouse, 344; Plants of the 16th century, 222; Poison for mice, rabbits and slugs, 327; Pond weeds and copper sulphate, 84; Potatos: discoloured, 327; diseased, 238; Primula leaves, scorched, 294; Primula obconica: leaves diseased, 670; with a fungus growth, 42; Primulas: propagation of, 280; rash caused by handling, 112; Propagation: of epiphytal Orchids, 327; of herbaceous and alpine plants, commercial, 70; of Primulas, Polyanthuses and alpine Auriculas, 280; of Viburnum Carlesii, 168; Putting and clock golf greens, formation of, 293; **R**aphis flabelliformis and Dracaena, bleached leaves of, 154; Rash caused by handling Primulas, 112; Rhododendron, failing, 328; Rose Maréchal Neil, 293; **S**chool of landscape gardening, 312; Seed growing, 112; Shot-hole fungus on Peach leaves, 328; Soil for examination, 280; Spruce aphis on Picea pungens, 312; **T**ennis courts: construction of hard, 192; weeds on a hard, 84; Tomatos: diseased, 266, 280, 294; dying off, 252; seedlings, 180; Town gardens, designing, 168; **V**iburnum Carlesii, propagation of, 168; Vine foliage dropping, 328; Vine leaves, mildew on, 327; Vine: removing a large portion of a, 328; unhealthy, 312; Vines, bottle grafting of, 98; Violets, commercial cultivation of, 98; **W**ater from a stokehole, 312; Weed, flannel, 327; Weeds: in a crazy path, 14; in a pond, 84; on a hard tennis court, 84; Woodlice, to destroy, 294; **Y**ew hedge: a neglected, 252; improving a, 293; renewing the lower part of a, 312; Yew tree, unhealthy, 222.

Antartic regions, flora of the, 58
Anthemis cupaniana, 7, 26
Ants, the destruction of, 296
Apple and other fruit bloom, 261
Apple: a seedless and coreless, 16; Cox's Orange Pippin, pollinators for, 262, 290, 339
Apple room, the, 13
Apple stocks, immunity of, from woolly aphis, 267
Apples: at Gunton Park, late, 94; approximate average order of blossoming of market varieties of, in the South of England, 212; double-worked, 81; freightage of Australian, 100; home grown versus imported, 27, 39; in clamps, 150; manurial treatment of, 232; silver-leaf in, 202; stored, 95; the winter pruning of, 181; yellow-coloured dessert, 25
Apples, varieties of: Allington Pippin, 25; Cherry Pearmain, 165; Hanwell Souring, 203; Herring's Seedling, 38; Lord Hindlip, 165; Tompkin's King, 110
Arable land, spring awakening of, 57
Arctostaphylos Manzanita, 318
Arenaria verna, 183
Arnold Arboretum, the, 15
Artichokes, Globe, 322
Ash, canker of, 146
Asparagus beds, 80, 123, 165
Asparagus fly, the, 203
Asperula azurea setosa, 131
Association of Economic Biologists, 30, 85, 142, 204, 313
Astilbe chinensis pumila, 51
Astilbes, the coloured, 272
Astragalus Poterium, the propagation of, 361
Auckland Islands, plant collecting in the, 334
Australia, notes from, 20
Auton, Mr. W., 86
Azaleas: deciduous, 318; Kurume, 182

B

BAGATELLE, 85; Rose garden at, 143
Bailey, L. H. (*The Apple Tree*), 117
Balfour, the late Prof. Sir I. Bayley, 141
Bamboo, a new genus of, 181
Bamff Den as a public park, gift of, 227
Banana aphis, the, 281
Bark cloth, 295; African, 340
Barr Memorial cup, award of the, 194
Beans, Runner, 232
Bedford, Mr. Arthur, 156
Bees, foul brood in, 43
Beet, 276
Beetle, the Colorado, 30
Begonia Gloire de Lorraine, 118
Belgium's unknown soldier, British horticulturists' tribute to, 224
Benary, Ernest (*Seed Raising*), 160
Benbow, Mr. Joseph, 268
Berberis vulgaris, 177
Bermondsey, new garden superintendent for, 86
Bibliographical rarities, 37
"Big bud," experiments to destroy, 85
Birch logs and Silver Leaf disease on Plums, 262
Blind gardeners, Guild of, 313
Bog garden, the, 157
Bookham Common, 185

Books, Notices of:—**B**lack Currant Culture (*W. P. Seabrook*), 346; Botanical Magazine, 127; Bulletin of the Chamber of Horticulture, 282; **F**irst Book of Grasses (*Agnes Chase*), 346; Flowering Plants of South Africa, 57, 268; Fruit, Flower and Vegetable Trades' Year Book and Diary, 17; Fruit Foes (*T. W. Sanders*), 117; Fungus diseases of crops, 1920–21, 141; **G**uide to the University Botanic Garden, Cambridge (*H. Gilbert-Carter*), 160; **H**andbook of the larger British Fungi, a (*John Ramsbottom*), 354; Home Vegetable Garden, the (*Ella M. Freeman*), 346; Horticultural Directory and Year Book, 16; How to Form a Company (*Herbert W. Jordan*), 151; **I**nfluence of Electricity on Mutation in Plants (*A. Pirovano*), 160; **J**ottings from a Gardeners' Notebook (*F. W. Miles*), 315; Journal of the R.H.S. Gardens Club, 113; **L**e Chrysantheme, 169; **P**otato growing in New Zealand (*David Tannock*), 129; Practical Plant

550733

Ecology (*A. G. Tansley*), 346; Rose Annual, 141; Rose, the, in America (*J. Horace McFarland*), 346; Secretarial Practice, 360; Seed Raising (*Ernest Benary*), 160; The Apple Tree (*L. H. Bailey*), 117; The Culture of Pot Plants (*Hugh C. Davidson*), 151; The Ferns (*F. O. Bower*), 315; The Fundamentals of Fruit Production (*Victor Royal Gardner, Frederick C. Bradford and Henry Daggett Hooker*), 295; The Genus Eucalyptus (*H. H. Maiden*), 194; The Primulas of Europe (*Dr. John MacWatt*), 241; Third Annual Report of the Forestry Commissioners 288; Vegetable Culture (*Hugh C. Davidson*), 129

Books, old botanical and gardening, 188
Botanical Magazine, 127; the original drawings of the, 295
Botanic Garden of South Africa, the National, 281
Botanic illustration, history of, 253
Botany, advanced lectures in, 30
Bourdichon's figures of Black Currants, 110, 138
Bower, F. O. (*The Ferns*), 315
Box Hill, the future of, 76, 185
Bracken and pigs, 330
Bradford, Frederick C. (*The Fundamentals of Fruit Production*), 295
Brasso-Cattleya Hannibal var. Helen, 90
Brasso-Laelio-Cattleya Queen of the Belgians, Low's var., 321
Brest, "Irish moss" industry at, 100
Brighton, spring flowers at, 334
British Empire exhibition, 1924: and horticulture, 70, 82, 99, 110, 122; British bulbs for the, 282; horticultural council of the, 128; timber and forest products at the, 193
British horticulturists' tribute to Belgium's unknown soldier, 224
British Mycological Society, 30, 82, 221; Spring foray of the, 142
British sylviculture, 113
Brooms for woodland planting, 23
Browallia speciosa major, 272; B. viscosa, 349
Buckthorn, the Sea, 9
Buddleia asiatica, 49
Bulb garden, the, 33, 47, 63, 73, 103, 175, 183, 271, 285, 335
Bulbophyllum Sillemianum, 101
Bulbs: British, for the British Empire exhibition, 282; Dutch, in the Tuileries Gardens, 269; gift of, to Hyde Park, 194

C

Cabbage, the Skunk, 338
Calceolarias and Schizanthus, hybrid, 314
Calendar, another old garden, 51
Camellias, 145; single, 93
Campanula raddeana, 319; C. Rapunculus, 277; C. Telham Beauty, 21, 54
Campanulas, 7, 21
Canada, horticulture in, 115
Canadian timber, 114
Cannas, 171, 201
Cannon Hill Park, Birmingham, 8
Cardiff public parks, 118
Cardinal's flower, the, 75
Carnations: in the flower garden, 209; rust on, 191
Carrots, 150
Caterpillars, a plague of, 282
Cattleya Delphin, 213; C. Dowiana, 17; C. Rothmos, 133; C. Stuartii alba, 201
Cauliflowers, the forcing of, 123
Caustic fruit wash, 13, 26, 39, 54
Ceanothus rigidus, 208
Celsia Arcturus, 349

Certificated Fruits and Vegetables:—Apple, Ball's Pippin, 41; Leeks: Royal Favourite, 111; The Lyon, 111

Certificated Plants:—Anemone St. Brigid, Crowley's White, 237; Angulocaste Sanderae var. suavis, 324; Arctostaphylos Manzanita, 125; Begonia, Lord Lambourne, 304; Berberis replicata, 179; Brasso-Cattleya Apollo var. Duke of York, 251; B.-C. Apollo var. Majestica, 237; B.-C. British Queen, 40; B.-C. British Queen var. Excelsior, 68; B.-C. Enchantress var. Lady Primrose, 324; B.-C. Helen, 69; B.-C. Imperiale, 251; B.-C. Joan, Westonbirt. var., 251; B.-C. Pallas magnifica, 324; B.-C. Villa Jeanne, 303; B.-C. Vilmoriniana, Rutherford's var., 124; B.-C. Somme var. Enchantress, 191; Brasso-Laelio-Cattleya Truffautiana var. Triumph, 303; Calanthe Angela, Beckton's var., 55; C. Bryan alba, Beckton's var., 55; C. Glad-Eye, 13; C. revertens, 13; C. Rosabelle, 111; Campanula calcicola, 304; C. persicifolia var. The King, 367; Carnations: Atlantic, 279; Aviator, 279; Bona, 279; Donald, 304; Enchantress Supreme, 279; General Joffre, 279; Iceberg, 279; Jazz, 279; Mrs. Walter Hemus, 279; Oceanic, 279; Scarlet Iona, 304; Surprise, 304; The Herald, 279; Triumph, 279; White Wonder, 279; Wivelsfield White, 279; Cattleya Clotho var. Perfecta, 68; C. Dr. Miguel Lacroze var. Excelsior, 204; C. Enid alba, Bletchley Park var., 27; C. Enid alba, Our Queen, 191; C. G. P. Walker var. superba, 303; C. Hentschelii, Rosslyn var. 366; C. intermedia Aquinii, 324; C. Irene, 251; C. Irene var. Our Queen, 303; C. Prince Shimadzu var. Olympus, 302; C. Schröderae Duchess of York, 324; C. Stuartii var. albina, 191; C. Suavior, Low's var., 178; C. Tityus var. Ada Evans, 111; C. Vishnu var. Snowflake, 324; Cerasus Hukon, 237; Clematis macropetala, 237; Clivias: Field Marshal, 153; Lady Holford, 153; Westonbirt Perfection, 153; Coelogyne Sanderae, 191; Cyclamen Firefly, 40; Cymbidium Alexanderi, Crompton Hall var., 251; C. A., Cussons' var., 191; C. A. var. Rosalind, 124; C. A. var. White Wings, 191; C. Arthur, 111; C. Auriga, 124; C. Castor var. Laburnum, 303; C. Curlew var. Feather, 40; C. Doreen, 40; C. insigne, Cussons' var., 191; C. i. rhodochilum, 152; C. i. St. Andre, 152; C. Mastersii, Cussons' var., 13; C. Maydew, 191; C. Merlin, Westonbirt var., 152; C. Schlegelii var. Kervalli, 191; C. S. var. rubrochilum, 124; C. S. var. Serena, 111; C. Seamew, 251; Cypripedium Admiral, 124; C. Alethea, 13; C. Antinea, 302; C. bellatulum var. Serianthian, 324; C. Britain's Monarch, 13; C. Cappa-magna var. Victoria, 13; C. Cappa-magna var. Paschalia, 251; C. Caractacus var. Parasceve, 251; C. Cardemona, 180; C. Chorltonville, 13; C. Christopher bisepalum, 55; C. C. var. Grand Monarch, 27; C. Chrysotens, Usk Priory var., 13; C. Cynosure, 55; C. Desdemona var. Radiant, 111; C. Dulcis, Lambeau's var., 69; C. Emerald, 13; C. Emerald, Beckton's var., 55; C. Enchantress, 324; C. Eurybiades var. The Baroness, 124; C. E. var. The King, 27; C. Florence Spencer, 68; C. F. M. Ogilvie var. Conyngham, 124; C. Forest King, 111; C. General Degoutte, 111; C. Godefroyae splendens, 13; C. Golden Sunset, 55; C. Goultenianum albens, 356; C. Helena, 27; C. Icarus West Point var., 124; C. Imperator Excelsior, 68; C. J. M. Black var. Samson, 111; C. Julettie, 55; C. Kervallii, 13; C. Lady Gray, 13; C. Londinum, 111; C. Lord Wolmer, Westonbirt var., 13; C. Mandarin, 27; C. Marian, 356; C. Marie var. Jean Walker, 68; C. Matthewsianum, Usk Priory var., 27; C. Memoria F. M. Ogilvie var. Leopardinum, 180; C. Memoria F. M. Ogilvie var. The Chancellor, 180; C. Minotaur, 13; C. Moonstar, 191; C. Mrs. Giles, 55; C. Mrs. Rickard var. Mercia, 55; C. Monialis var. Hilda Sharp, 13; C. Moonlight var. Delicata, 13; C. Nesta, 68; C. Noel, 27; C. Nydia rubella, 55; C. N. Westonbirt var. 13; C. Olympus var. Diadem, 55; C. O. var. Rex, 68; C. Othello, St. Mary's var., 13; C. Pixie var. rubra, 55; C. Senator, 124, 180; C. Sir H. Rawlinson, Chardwar var., 13; C. Statul, 27; C. Swallow, 27; C. Thais, Gratrixiae, 111; C. Torelor, Beckton's var., 13; C. Trentino, 55; C. Troilus var. Jupiter, 13; C. Verona var. Furens, 13; C. Windsor, 191; Cytisus Cornish Cream, 264; C. Dorothy Walpole, 264; Delphinium Blue Boy, 367; D. Mrs, Townley Parker, 367; D. Unique, 367; Dendrobium Bancroftianum, 180; D. Cybele majalis, 191; D. electrum magnificum, 191; D. Florence var. Wilps, 251; D. Gatton Monarch var. F. J. Hanbury, 96; D. Gatton Sunray, 302; D. nobile, Keeling's var., 251; D. n. Sir G. W. Moore, 124; Eranthis Tubergenii, 252; Eulophiella Rolfei, 13; Gentiana Hopei, 304; Hydrangea Maréchal Foch, 264; H., Triumph, 304; Incarvillea Bees' Pink, 304; Iris Douglasiana var Merton, 264; I. tenax purpurea, 264; I. Thundercloud, 341; Kolkwitzia amabilis, 367; Laelio-Cattleya Britannia var. plumosa, 13; L.-C. Canhamiana Sunray, 324; L.-C. Dodona var. Ashiae, 55; L.-C. Eunice magnifica, 111; L.-C. Faust, 204; L.-C. Gold Flake, 324; L.-C. Hassallii alba. var. Perfection, 204; L.-C. Mrs. W. Pemberton, Dell var. 366; L.-C. Nora, 178; L.-C. Schröderae var. Imperator, 111; L.-C. Surprise, 356; Lilium Golden Grb, 367; Lupinus Harkness' Strain, 367; Lupinus arboreus, Light of Lodden, 341; L. Downer's Strain, 304; Lycaste Gratrixiae, 324; L. Skinneri brilliantissima, 191; L. S. hellemensis, 191; L. S. His Majesty, 191; L. S. Pallas, 191; L. S. Robin, 68; L. S. Zeus, 251; L. S. Virgin Queen, 180; Maxillaria Fletcheriana, 191; Miltonia Butterfly var. Empress, 303; M. Constance, 303; M. Reine Elizabeth var. Roi des Belges, 124; M. Sanderae Unique, 303; M. S. var. Painted Lady, 324; M. Venus var. Fascinator, 324; M. William Pitt, 341; Miltonioda Harwoodii, Ashtead Park var., 204; M. H., Bolholt var., 68; Narcissus Actaea, 252; N. Alban, 251; N. Beauty of Radnor, 220; N. Callirrhoe, 179; N. Cheerfulness, 252; N. Corinna, 252; N. Dainty Maid, 220; N. Dawson City, 252; N. Dinton Red, 220; N. Dorina, 252; N. Dulcimer, 220; N. Eyebright, 252; N. Geertruida Carelsen, 252; N. Glorious, 179; N. Golden Empress, 153; N. Golden Giant, 252; N. Golden Harvest, 252; N. Golden Herald, 125, 153; N. Golden Sunrise, 179; N. Great Dane, 153; N. Honey Boy, 251; N. Hortulanus E. Th. Witte, 252; N. Intensity, 238; N. Lady Moore, 252; N. La Vestala, 252; N. Lord Wellington, 252; N. Lovenest, 252; N. Mainsail, 238; N. Miss Helen O'Hara, 220; N. Mrs. R. O. Backhouse, 252; N. Opera, 238; N. Orange Glow, 252; N. Owen. 220; N. Prince Umbria, 179; N, Provost, 179; N. Puritan Maiden, 205; N. Red Cross, 252; N. Red Guard, 220; N. Red Rim, 220; N. Roland, 238; N. Sanguine, 252; N. Stromboli, 252; N. Tenedos, 251; N. Vara, 252; N. (unnamed), 205; N. White Whirl, 252; N. Wide Wing, 220; N. Xenophon, 252; Odontioda Antinea, 13; O. Brilliant, 303; O. Chantecler, Orchidhurst var., 356; O. Colinge var. Admiral, 55; O. C. var. Redwing, 251; O. C. var. Rosemary, 124; O. Cordor, 111; O. Duchess of York, 303, 356; O. Earl of Chester, 251; O. Juno var. Mira, 324; O. Le Papilon, 324; O. Marina var. rubra, 356; O. Mary Gratrix, 124; O. Mena rubra, 251; O. majestica, 251; O. Mulatto, 124; O. Murillo, 303; O. Naomi, 264; O. Pegasus, 68; O. Radiant var. Majestic, 303; O. Rufus var. Wickham Beauty, 124; Odontoglossum Adula var. rubens, 124; O. Agapetum var. Brunette, 124; O. Aiglon var. Majesticum, 204; O. Aireworth, Beardwood var., 124; O. amabile Duke of Portland, 191; O. a. St. Andre, 356; O. Amazon, 111; O. Antinous, 324; O. Ardendora var. Radiance, 13; O. × Aureola, 204; O. Aurora var. Rajah, 178; O. crispo-Solon, Pitt's var., 27; O. c.-S. var. Carmania, 302; O. crispum Annette, 356; O. c. Daisy, 191; O. c. Duchess of Athlone, 251; O. c. Esmerelda 303; O. c. Faustina, 324; O. c. Fred Hardy, 13; O. c. Lady Mary Cambridge, 324; O. c. Lady Rachel, 191; O. c. Mirimar, 356; O. c. Olympe, 124; O. c. Princess Yolanda, 252; O. c. West Point Beauty, 251; O. Dodeham Prince of Orange, 124; O. Ernest Bristow, 366; O. Eros, 324; O. eximium St. Alban, 356; O. Fabia var. Biddy, 237; O. F. var. Royal Beauty, 68; O. Florence, 13; O. Gatton Emperor var. Nero, 303; O. Goldcrest, 341; O. Gorizia var. Imperial Purple, 264; O. Hardyanum, 251; O. harvingtense, Rosslyn var. 324; O. Leander 251; O. Llewellyn, 69, 152; O. L. var. Colossum, 303; O. L. var. Radiant, 13; O. Mandarin, 191; O. nebulosum × xanthotes, 324; O. Odyssey, 111; O. Orosius magnificum, 366; O. Penelope, Rosslyn var., 356; O. Promerens var. albens, 251; O. P. var. Prince Henry, 180; O. P. var. Princess Mary, 356; O. Purple Queen, 96; O. Radiant, 356; O. Rosina, West Point var., 251; O. Serapis var. Dusky Monarch, 303; O. St. Nicholas violacea, 251; O. Tagus Gerrish's var., 264; O. Victory var. Duchess of York, 324; O. W. E. Bissett, 324; Odontonia

Baroness Schröder, 96; O. Corona var. Rajah, 341; O. Dora, 152; O. Eurydice, Bolholt var., 55; O. Gratrixiae, 356; O. Merope, Bolholt var., 55; O. Olivia, 303; Papaver orientale var. Miss Swete, 367; P. o. var. Mrs. G. H. Stobart, 367; Pentstemon puniceus, 341; Pieris taiwanensis, 179; Primula calciphila, 97; P. chrysopa, 304; Prunus Blirieana fl. pl., 179; P. Conradinae, 97; Pyracantha Gibbsii, 23; Pyrethrum Harold Robinson, 341; Rhododendron bullatum, 237; R. ciliicalyx, 125; R. dichroanthum, 341; R. decorum var. Mrs. Messel, 264; R. Euphrosyne, 237; R. Exminster, 205; R. picto-lacteum, 237; R. Gilian, 237; R. insigne, 341; R. Lady Constance, 304; R. Ne Plus Ultra, 96; R. Penjerrick, 237; R. Pink Shell, 304; R. rhododactylum, 179; R. Sargentianum, 264; R. strigillosum, 125; R. (unnamed), 304; Roses: Capt. F. S. Harvey Cant, 304; David Lloyd George, 264; Deception, 236; Mrs. Beckwith, 236; Mrs. Tresham Gilbey, 236; Orange King, 304; Orange Queen, 341; Rubus biflorus quinqueflorus, 23; Saccolabium bellinum Haddon House var., 55; Saxifraga Cotyledon × caterhamensis, 341; S. Griesbachii, Wisley var., 179; S. R. V. Prichard, 125; S. Valerie Keevil, 153; Sophronitis Lowii, 40; Stranvaesia undulata, 23; Trillium undulatum, 237; Tulip Alcemene, 265; Viola hybrida Haselmere, 264; Vuylstekeara insignis, var. Marigold, 324; V. Memoria Joseph Charlesworth, 324; V. Rutherford's Sylvia, 124; Yucca gloriosa argentea, 341

Chamber of Horticulture, 357; "Bulletin" of the, 282
Charities, help for the gardening, 44
Chase, A. (*First Book of Grasses*), 346
Chelsea show, 302, 313, 325; in 1924, 72, 85
Chervil, bulbous, 190
Chicago, beautifying the city of, 267
"Chortle," to: meaning of, 95
Christmas flowers at Pyrford Court, 2
Chrysanthemum: the history of the, 132; insect enemies of the, 282; Mrs. Jack Pearson, 65
Chrysanthemums, 6; late, 94, 139, 165, 220; the best French, 268
Cirsium eriophorum, 123
Cistus ladaniferus, 317
Citrus crops in Greece, 330
"Clay" Cup for Roses, 345
Claytonia perfoliata, 138, 166, 190, 249
Clerodendron fallax, 93
Clianthus, 61
Climbers: planting, 5; stove, 108
Coffee tree, the Kentucky, 161
Colchicum, 76
Cold on plants, the effect of, 85
Colour in the garden in winter, 65, 104
Commercial horticulture in the Scilly Isles, 66, 94
Confessions of a novice, 273, 353
Coniferous trees, old and new, 228
Copper sulphate as a tree cleanser, 232
Cottle's, Dr., expedition to the East, for Orchids, 15
Cotton growing, studentships in, 330
Covent Garden Market, Easter in, 186; strike at, 208
Crinum, 73
Crocus biflorus, 103; C. Caroline Chisholm, 175; C. Kathleen Parlow, 175; C. King of the Whites, 175; C. Mont Blanc, 175; C. Sieberi, 63, 73; C. Snow White, 175; C. Tilly Koenen, 175; C. Tommasinianus, 175; C. versicolor, 103
Crocuses, 76; white, 175
Crops: damaged by rooks, 30; electrification of, 27; fungous diseases of, 141
Crombie, Mr. David, 360
Cucumbers, 54, 111
Cultural memoranda, 5, 34, 105, 118, 146, 248
Currant bud mite: and reversion, 81, 138; sulphur as a cure for, 268
Currant, Red, Laxton's Perfection, 165
Currants, Black: a new cure for big bud in, 29, 54; Bourdichon's figures of, 110
Curtis, Mr. C. H., award of the Peter Barr Memorial Cup to, 194
Cuttings in acidic media, propagation by, 244
Cyclamens, methods of growing, 225
Cymbidium flabellatum, 188; C. Humblotii, 188; C. insigne Bieri, 290; C. Merlin Westonbirt var., 213; C. rhodochilum, 187
Cymbidiums, three Madagascar, 187
Cypripedium chrysostom var. Amy Moore, 35; C. Eurybiades, The Dell var., 62; C. Fletcherianum var. Antinea, 321
Cypripediums, large-flowered, 35, 133
Cytisus purpureus incarnatus, 269

D

DAHLIAS, dwarf, for bedding, 347
Daffodils at Sutton Court, 202
Daphne Cneorum, 48; D. C. alba, 245
Dartmoor, afforestation of, 72
Davidson, Hugh C. (*The Culture of Pot Plants*), 151; (*Vegetable Culture*), 129
Dawson, the late Mr. Jackson, memorial to, 314
Decaisnea Fargesii, 161
Dewar, Mr. Alexander, presentation to, 169
Dicentra spectabilis, 37, 67
Disease resistance and a copper hypothesis, 276
Douglasia Vitaliana, 21
Droitwich, experiments at, 262, 290, 355
Durban, motor versus locusts in, 249
Durian, the, 259

E

EASTER IN COVENT GARDEN, 186
Edinburgh Botanic Gardens, notes from, 104, 334
Elaeagnus argentea, 161
Electrification of crops, 27
Elwes, the late Mr. H. J., 296
Epiphyllums, 61
Epping Forest, new lake at, 44
Erigeron mucronatum, 356
Erinacea pungens, the propagation of, 318
Erodium chamaedryoides, 272; E. cheilanthifolium, 131
Erythraea Massonii, 91
Eschscholzia, 258
Eucalyptus, the genus, 194
Eucharis, 231
Exchange, rate of, in France, 345
Exhibitions: at Amsterdam, 128; at Gothenburg, Sweden, 114

F

FAGUS SYLVATICA ROTUNDIFOLIA, 352
Farmyard manure, a garden substitute for, 290, 299, 322, 339
Fendlera rupicola, 177
Fernery, the, 17, 137, 225, 299
Ferns, hardy British, 137
Fertilisers cheaper, 345
Field mice, to trap, 356
Finger-and-toe disease at Droitwich, 355
Fire in an American nursery, 282
Fir, Silver, witches' broom on, 11
Florist's flowers, 65, 94, 209
Flower border, hardy, 7, 21, 34, 52, 105, 122, 132, 159, 173, 195, 209, 229, 272
Flower garden, the, 5, 18, 33, 47, 61, 74, 88, 103, 116, 130, 145, 159, 173, 184, 197, 210, 226, 242, 256, 270, 284, 298, 316, 333, 349
Flowers: for Glasgow market, 26; in season, 114, 194; out of season, 99
Fly, the St. Mark's, 330
Foreign correspondence, 10, 133, 165, 176, 189, 225
Forest area, northern Scotland as a, 114
Forest lands for Aberdeen University, 86
Forestry, 108, 136, 228
Forestry chair at Aberdeen, proposed, 296
Forestry Commissioners' report, 288
Forestry museum at Kew, the British, 142
Forests in Britain, plea for communal, 136
Forrest, Mr. G., and Mr. F. Kingdon Ward, return of, 155
Forst Rose Show, 345
Forsythia, a new, 282
France: garden league for devastated, 208; the best Chrysanthemums in, 268; rate of exchange in, 345
Fream Memorial prize, award of the, 267
Freeman, Ella M. (*The Home Vegetable Garden*), 346
Freesias, 34
French exhibitions, forthcoming, 45
French fruit-growers' visit to England, 360
French Horticultural Congress at Grenoble, 345
Fruit culture in Sweden, 355
Fruit: exhibit of, at Stafford, 95; fungous diseases of, 193
Fruit garden: the hardy, 4, 18, 32, 46, 60, 74, 89, 102, 116, 130, 144, 158, 172, 185, 196, 210, 227, 243, 257, 270, 284, 290, 298, 317, 332, 348; the market, 24, 80, 150, 202, 261, 338
Fruit industry of South Africa, 295
Fruit-testing station in Scotland, proposed, 240
Fruit register, 25, 38, 110, 165, 190, 203, 212
Fruit trees, grafting, 87
Fruit, spraying, 203
Fruits: the setting of, 128; the testing of new varieties of, 254; under glass, 5, 18, 32, 46, 60, 75, 88, 102, 116, 130, 144, 158, 172, 184, 196, 211, 226, 242, 256, 270, 284, 298, 316, 332, 348
Fruit trees, the roots of, 259
Fruit wash, caustic, 13, 26, 39, 54
Fungous diseases of crops, 141

G

GALANTHUS PLICATUS FRASERI, 103; G. poculiformis, 63
Gallantry of a park official, 2
Galsworthy's, Mr. Frank, garden and flower pictures, 329
Galt, Mr. Alex S., 16
Gardener, sad death of a, 208
Gardeners' Chronicle: and the Ghent exhibition, 224; seventy-five years ago, 3, 17, 30, 45, 59, 73, 87, 101, 114, 128, 143, 157, 170, 182, 195, 208, 224, 241, 255, 269, 283, 296, 315, 331, 346, 369
Gardeners: legacies to, 30, 128, 156, 182; veteran, 58, 156; wages, 151, 166, 203, 232, 263, 291, 323, 340
Gardeners' Royal Benevolent Institution, 67, 128, 314
Gardening: in Central Africa, 288; some effects of the war on, 12; wireless lecture on, 232
Garden league for devastated France. 208
Garden notes from S.W. Scotland, 36, 104, 135, 162, 198, 286, 319, 363
Gardens: at Olympia, 128, 166, 191; economy in private, 249; prizes for London, 72
Gardner, Victor Royal (*The Fundamentals of Fruit Production*), 295
Garland flower, the white, 245
Gaston, Mr. A. J., presentation to, 142
"Geo. Monro, Ltd." concert, 71, 100
Geranium anemonaefolium, 173; G. atlanticum, 34, 272
Germany: gardening news from, 346; the nitrogen industry in, 128
Germination, 111
Geum rivale, Leonard's var., 272
Ghent Quinquennial exhibition, 16, 72, 141, 223; Britain's part in the, 240; British and Irish members at the, 156; British section of the, 170; *Gardeners' Chronicle* and the, 224; Sander memorial prize for the best new plant at the, 2
Gibbon's garden at Hampton Court, 214
Gilbert-Carter, Humphrey (*Guide to the University Botanic Garden, Cambridge*), 160
Gildredge Park, Eastbourne, 273
Gill, Mr. Richard, 182
Ginkgo biloba, distinguishing the sex of, 10
Gladioli, 20, 47, 183; origin and evolution of summer-flowering, 164, 177; white, 39
Gladiolus primulinus, earliest hybrids of, 10, 54
Glasgow: Botanic Gardens, 227, 273; parks superintendency, 268
Glasnevin, notes from, 45, 121, 199
Globularias 75
Gnat bites, lotions for, 346
"Gordon's Gardening," 120
Gourds, ornamental, 198
Gourock, new public park for, 119
Grafting fruit trees, 87
Grant, Mr. W. J., retirement of, 281
Grape growing: exploded fallacies in, 258; under difficulties, 81
Grapes, hardy, 190
Grass orchards, 339
Greece, Citrus crops in, 330
Greenhouse flowering plants, 20; at Reading, 91
Greenwich Park, new superintendent at, 254, 334
Grenoble, French horticultural congress at, 345
Grevillea asplenifolia, 178; G. rosmarinifolia, 287; G. sulphurea, 287
Guelph Gladiolus show, 208
Guild of Blind Gardeners, 313
Gunton Park, late Apples and Pears at, 94
Gymnogramme leptophylla, 17

H

HAMPTON COURT, spring flowers at, 259
Harwood, Mr. J., 58
Heaths, some uncommon, 89, 123
Hedges, Holly, 248
Helleborus, 317
Hemsley, Dr. W. B., 282
Henry, Prof. A., honour for, 207
Herbaceous perennials for cut flowers, 105
Herbarium presented to Kew, 329
Herb garden, the, 109
Herman, Mr. C., jubilee service of, 3
Hillier, Mr. J. Masters, 296
Hogg and florists' flowers, 6

Holly hedges, 248
Hooker, Henry Daggett (*The Fundamentals of Fruit Production*), 295
Hop growers, payment to, 208
Horticultural traders and taxation, 148
Horticulture: afloat, 48; at the British Empire exhibition, 70, 82, 99, 110, 122; in the Isles of Scilly, 94
"Horticulture in Holland," 268
Hyde Park, gift of bulbs to, 194
Hypericums, some dwarf, 243

I

Ideal Homes Exhibition, 128, 166, 191
Imperial College of Science, plant pathology at the, 100
Imperial fruit show, 1923, 101, 223
"Index Kewensis," 182
Indoor plants, 5, 20, 49, 61, 93, 108, 115, 145, 171, 189, 201, 231, 272, 337, 349
Insect enemies of the Chrysanthemum, 282
Insect pests in the fruit garden, 338
International Congress at Amsterdam, Kewites at the, 170
Inventions, new horticultural, 56, 139, 191, 293
Ireland, notes from, 147, 347
Irises, 76, 361
Iris lutescens-Stabellae, 349; I. Marjorie Tinley, 361; I. sibirica, 349
Irving, Mr. Walter, 330.
Ixiolirion, 349

J

January Flowers, 76
Jardin des plantes at Montpellier, 146
Jeffersonia dubia, 131
Johns, Mr. Wm. H., appointment of, 86
Jones, Mr. H. J., 30
Jordan, Herbert W. (*How to Form a Company*), 151
"Journal of Pomology and Horticultural Science," 43
Juglans cathayensis, 103

K

Ken Wood, 2
Kew, alpine plants at, 319; British Forestry Museum at, 142; death of a former gardener at, 170; presentation of a herbarium to, 329; special exhibits of botanical interest at, 57
Kewites at the International Congress at Amsterdam, 170
King, Mr. David, illness of, 296
Kirengeshoma palmata, 258
Kirstenbosch, new South African plants at, 268
Kitchen garden, the, 5, 18, 32, 46, 60, 74, 88, 102, 117, 131, 144, 158, 172, 184, 196, 210, 226, 242, 256, 271, 285, 298, 316, 332, 348, 362

L

Laelio-Cattleya Aethiopian, 101; L.-C. Beauty, 171; L.-C. Dodona, 62; L.-C. Emily Methuen, 290; L.-C. Gwendolen Leach, 213; L.-C Nancie Gamble, 187; L.-C. Narcissus, 201; L.-C. Saffron, 160
Lake: at Epping Forest, 44; in St. James's Park, 329
Land, continuous tenure of, for nine-hundred years, 16
Landscape gardening for women, American school of, 169
Lapagerias, 49
Lathyrus odoratus zeylanicus, 364
Lavender, varieties of, 301
Law Notes:— Failure of a manure firm, 42; of a market salesman, 167; of a nurseryman, 28, 168
Legacies: to a nursery manager, 17; to gardeners, 30, 128, 156, 182
Lettuce, a new disease in, 86
Lilies, 274: for planting in January, and February, 33; in 1922, 78; 86; some easily-grown, 79
Lilium monadelphum, 79; L. sulphurgale, 133
Lilacs, hybrid, 352
Lily-of-the-Valley, coloured forms of, 240; home-grown, 34
Linum arboreum, 209; L. narbonense Six Hills variety, 159
Lithospermum prostratum, 26
Liverpool's fruit and vegetable markets, 360
London Daffodil show, 100
London Gardens Guild, 182
London weather forecasts, 57
Lonicera Hildebrandtiana, 26
Lotions for gnat bites, 346
Loudon, Jane, 77, 95, 110
Lowe, Mr. Joseph, 100
Lupins, 173
Lychnis chalcedonica, 122
Lysichitum camtschatcense, 157

M

McFarland, J. Horace (*The Rose in America*), 346
M'Hattie, John W., 170, 252
Mackie, Dr., honour to, 313
MacWatt, Dr. John (*The Primulas of Europe*), 241
Magnolia Kobus var. borealis, 301
Magnolias, 177
Maidenhair, a fine hardy, 225
Maiden, Mr. J. H.: honour for, 155; (*The Genus Eucalyptus*), 194
Manure, a garden substitute for farmyard, 290, 299, 322, 339
Manures, the application of artificial, 101
Manurial experiments at Droitwich, 262, 290
Manuring orchards, 24
Mare's-tail, fruit structure and germination of the, 239
Marloth, Dr., 254
Masdevallia deorsa, 258
Matthews, Mr. C. M., 2
Matthews, Mr. Edward, 268, 346
Mayhew, Mr. Chas. W., presentation to, 29
Medals for fruit exhibits, 346
Melon Dickson's Acquisition, 150
Melon fruits cracking, 323
Mesembryanthemum uncinatum, 34
Miles, F. W. (*Jottings from a Gardener's Notebook*), 315
Miltonias, 145
Ministry of Agriculture, Intelligence Department of, 155
Montbretias, 105, 166
Moonock, 323, 340, 356
Mosaic disease, 345
Motor cycle versus locusts in Durban, 249
Muscari Heldreichii, 73

N

National Institute of Agricultural Botany, 156
Naturalists' show, field, 20
Neill, Patrick, 320
Nepenthes mixta, 113
Nerine Bowdenii, 295, 335
New Jersey, notes from, 354
Nitrogen industry in Germany, 128
Nomocharis pardanthina, 299
Nursery, fire in an American, 282
Nursery Notes: Mr. Moyses Stevens, Wandsworth Common, 213; Sutton and Sons, Reading, 91
Nuts and Filberts, 138

O

Oak Timber, Bog, 198; eight and a half centuries old, 248

Obituary:— Bonnier, M. Gaston, 13; Callier, Eugène, 358; Cannon, George, 98; Challis, Thomas, 358; Clark, John, 27; Fowler, Rev. Canon W. W., 326; Gilbert, Mrs., 167; Greening, Edward Owen, 154; Grey, Thomas J., 180; Hall, John, 55; Harrington, George, 208; Hay, John, 84; Jefferies, John E., 358; Jordan, F. W.; 265; Maclennan, George, 154; Martin, R. F., 126; McNicol, Edwin, 265; M'Hattie, John W., 352; O'Neil, Bartholomew, 55; Parsons, Samuel, 112; Plymouth, the Earl of, 154; Priest, William, 358; Powell, David Charles, 167; Russell, James, 222; Stewart, John Malcolm, 70; Thomas, Owen, 312, 313, 326; Turner, James S., 206; Waters, Alfred, 126; Welsh, Alexander, 222; Wilks, Rev. W. 127; Winter, Thomas, 98

Odell, Mr. John W., 170
Odontioda Bantingii, 321; O. Daffodil Montague Mackenzie, 187; C. Deltilia, 247; O. J. Eversfield, 347; O. Red Dragon, 118; O. Walda, 160
Odontoglossum Amillus, Gerrish's var., 213; O. Aquila, 62; O. Camden, Low's var., 290; O. crispum Cepheus, 321; O. Orosum, 187; O. St. Emilion, 62
Œnothera taraxicifolia, 183
Olympia, gardens at, 128, 166, 191
Oncidium McBeanianum, 133
Onions, 54, 111; large *versus* small foliage on, 138
Onoclea sensibilis, 299
Orchards, grass, 339; manuring, 24
Orchid houses, the, 4, 18, 32, 46, 60, 74, 88, 102, 116, 130, 144, 158, 172, 184, 196, 210, 226, 242, 256, 270, 284, 298, 316, 332, 348, 362
Orchid hybrids, new, 62, 160, 258, 334
Orchid notes and gleanings, 17, 35, 62, 90, 101, 118, 133, 145, 160, 171, 187, 201, 213, 247, 258, 290, 321, 347
Orchids: Dr. Cottle's expedition to the East for, 15; in 1922, 10
Orchis incarnata pulchella, 347
Ornithogalum nutans, 47
Osteomeles anthyllidifolia, 335
Oxalis lobata, 195

P

Paeonies Herbaceous, 229; special cups for, 77
Paeonia Emodi forma, 365
Page, Mr. W. H., 72
Painters, early botanic, 8, 92, 148, 200, 260, 336
Palm garden in Leipzig, the, 239
Palms of the Riviera, 136, 248
Papaver alpinum, 34
Paris autumn show, 239
Park, new public, at Gourock, 119
Parks and gardens, public, 118, 185, 227, 273, 334,
Pea, a prolific, 296
Peas: 176, 249, 277, 323; the earliest, 123
Pear, prolification of, 19
Pear stock, a new, 282
Pears: 38, 208; approximate average order of blossoming of market varieties of, in the south of England, 212; manuring of, 232
Peat composts, 113
Pelargonium leaf spot, 208
Pelargoniums for winter flowering, 49
Pentactina rupicola, 331
Perennial carpeting plants, 118
Perennials, herbaceous, 132; for cut flowers, 105
Perfume, cultivating, 194
Pernettya, 9
Pettigrew, Mr. A. A., 114
Pictures, Mr. Frank Galsworthy's garden and flower, 329
Pieris taiwanensis, 63
Pigs and Bracken, 330
Pirovano, A. (*Influence of Electricity on Mutation in Plants*), 160
Plant collecting in the Auckland Islands, 334
Plant names, puzzles in, 201, 323, 356
Plant notes, 299, 335
Plant pathology at the Imperial College of Science, 100
Planting, deep, 146
Plants: failures with, 109, 123, 165; forcing, 5; for sub-tropical effect, 52; for the moraine, 257; mystery, of Uganda, 36; new South African, at Kirstenbosch, 268; of special garden merit, 23; specimen for the flower garden, 297; the effect of cold on, 85; the naturalisation of, 164; the propagation of "difficult," 318, 333, 361; under glass, 5, 18, 32, 46, 60, 75, 88, 102, 116, 130, 145, 158, 172, 184, 196, 210, 226, 242, 256, 270, 284, 298, 316, 332, 348, 362

Plants, New or Noteworthy:— Astilbe chinensis pumila, 51; Magnolia Kobus var. borealis, 301; Paeonia Emodi forma, 365; Pentactina rupicola, 331; Pieris taiwanensis, 63; Primula calciphila, 101, 283; P. Delavayi, 331; Psilotum triquetrum, 365; Rhododendron obtusum album, 227; R. insigne, 351; R. phoeniceum var. Tebotan, 255; R. praeteritum, 143; R. praevernum, 159; R. strigillosum, 129; R. sutchuenense, 171; Rubus robustus, 51; Sanguinaria canadensis var. multiplex, 283; Silene Californica, 365; Sisyrinchium filifolium, 129, 178

Playing pitch at the Empire Stadium, 240
Plumbagos, red-flowered, 49
Plums: approximate order of blossoming of, in the south of England, 190; birch logs and silver leaf disease on, 262; manurial treatment of, 232; poor crop of, 339
Pollen, on, 169
Polyanthuses: reversion in, 269; in praise of, 207
Poppy, the Shirley, 149
Poppies for Memorial day in America, 240
Postal Rates, reduction in the, 208
Potato and hay crops, 58
Potato, degeneration of the, 25, 38, 54, 157
Potato flowers, degeneration and causes of sterility in, 176, 188
Potato foliage, leaf-roll in, 194
Potato seedlings, tuber formation in, 13
Potato sets, yields of whole and cut, 100
Potato variety trials, 193
Potatos: early, 26, 359; supposed relation of skin spot to corky scab in, 355; wart disease of, 114; wart disease of, on allotments, 182
Potentilla rupestris, 285
Potinara Lowii, 145; P. Juliettae, 90
Preston Park, Brighton, 273
Prices, inquiry as to, 2, 345
Primula calciphila, 101, 239, 283; P. Delavayi, 331; P. denticulata, 173; P. erythrocarpa, 255, 291; P. malacoides, with rounded flowers, 203; P. sinensis and P. calciphila, 239
Primulas: at Reading, 91; for home decoration, 166
Prizes for London gardens, 72
Propagation: by cuttings in acidic media, 244; of "difficult" plants, 318, 333, 361
Prunus cerasifera and varieties, 185; P. rufa, 335

Psilotum triquetrum, 365
Pulmonaria angustifolia azurea, 122
Purslane, winter, 138, 166, 190, 249, 292
Puschkinias, 271
Pynaert, Mr. Charles, 282
Pyracantha Gibbsii, 23
Pyrford Court, Christmas flowers at, 2
Pyrus salicifolia, as a stock for Pears, 38 ; -P. Scheideckeri, 185, 203 ; P. toringoides, 89

R

Railway Station Gardens, 30
Rainfall : heavy, 142 ; in 1922 at Tirley Garth Gardens, Tarporley, 15
Rain gauges, the earliest, 72
Ramsbottom, John (*Handbook of the Larger British Fungi*), 354
Ranunculus, 209 ; R. glacialis, 157
Raphiolepis Delacouri, 34
Raspberry stem bud moth, 11
Raspberries, 29
Reading, greenhouse plants at, 91
Rehmannia angulata, 145
Research, grants for agricultural, 239
Rhododendron obtusum album, 227 ; R. phoeniceum var. Tebotan, 255 ; R. praeteritum, 143 ; R. praevernum, 159 ; R. strigillosum, 129 ; R. sutchuenense, 171
Rhododendrons : 64 ; javanicojasminiflorum, 189 ; on limestone, 26, 59, 151 ; the propagation of Himalayan, 146 ; value of aluminium sulphate in soils for, 281
Rhodora canadensis, 161
Richardias, 337
Richmond flower show, 43
Richmond Park official, gallantry of a, 2
Robinia Pseudacacia, poisonous pods of, 166
Rock garden ? what is a, 323, 340, 356, 366
Rockingham flower show, 71
Romneya Coulteri, 139, 166
Rooks, crops damaged by, 30
Rose Belle Portugaise, 289, 330
Rose garden at Bagatelle, 143
Rose growing, 223
Roses, Christmas, 317
Roses, wireless lecture on, 193
Rotation, manure or fertilisers, 99
Rothamsted Experimental Station, inspection of, 364
Rouken Glen Park, Glasgow, 44
Roville Horticultural College, centenary of the, 16
Royal Academy, floral pictures at the, 267
Royal Botanic Society's gardens, 43
Royal Gardeners' Orphan Fund, 44, 95, 292
Rubber, wonderful, 228, 277, 292
Rubus biflorus quinqueflorus, 23 ; R. robustus, 51
Rudbeckia pinnata, 21
Rue, 161
Ruellia macrantha, 231

S

St. Cuthbert's Cole, 201, 356
St. James's Park, the lake in, 329
Salads, winter, 138, 166
Salvias, 361
Sander memorial prize at Ghent, 2
Sanders, T. W. (*Fruit Foes*), 117
Sanguinaria canadensis var. multiplex, 283
Sap, the ascent of, 253, 292
Sarawak, development of, 330
Saxifraga Kellereri, 47
Schinus Molle, 37
Schizanthuses and annual Larkspurs at Wisley, trial of, 331
Scholarships for rural workers, agricultural, 169
Sciadopitys verticillata, 59
Scilla Lilio-hyacinthus, 245
Scilly Isles, commercial horticulture in the, 36, 94
Scotland : allotments in, 16, 99 ; northern, as a forest area, 114 ; North-east, conditions in, 72 ; proposed fruit-testing station in, 240 ; garden notes from S.W., 36, 104, 135, 162, 198, 286, 319, 363
Seabrook, W. P. (*Black Currant Culture*), 346
Secretary, an absconding, 59
Sedum pilosum, 361
Sedums, some early-flowering, 62
Seed analysts, training and examination of, 43
Seed orders, three xviii century, 286
Seeds : effect of moonlight on the germination of, 30 ; for New Zealand, 359 ; the vitality of, 330
Sempervivum, 189
Sherwood, Mr. Edward, presentation to, 58,
Shrubs : for the seaside, grey-leaved, 12 ; some Californian, 174
Silver leaf disease, 249 ; in Apples, 202 ; Order of 1923, 314
Sisyrinchium filifolium, 129, 178
Skunk Cabbage, 199, 338

Societies : — Aberdeen Gardeners' and Florists', 68 ; Alderley Edge and Wilmslow Horticultural, 58 ; Ashford Cottage Gardeners', 87 ; Aylesbury Chrysanthemum, 115 ; **B**ath and West of England Agricultural, 293, 324 ; Beckenham Horticultural, 314 ; Blackheath and Lewisham Horticultural, 142 ; Bournemouth Horticultural, 58 ; Brighton, Hove and Sussex Horticultural, 59 ; British Carnation, 68 ; British Florists' Federation, 83 ; Bromley Chrysanthemum, 86 ; Bury and West Suffolk Horticultural, 157 ; **C**ardiff Gardeners', 42, 55 ; Chalfont St. Peter and Gerrard's Cross Horticultural, 156 ; Congleton Rose and Sweet Pea, 314 ; Cornwall Daffodil and Spring Flower, 263 ; **D**eal, Walmer and District Horticultural, 58 ; Deeside Field Club, 279 ; **E**astbourne Horticultural, 59 ; Egham Mutual Improvement Association, 86 ; Elgin Horticultural, 139 ; Elstree and District Horticultural, 152 ; **F**almouth spring show, 251 ; Finchley Chrysanthemum, 254 ; Finchley Horticultural, 58 ; Folkestone Gardeners', 86 ; **G**erman Rose Society, 345 ; Ghent Quinquennial, 216, 233 ; Glasgow and West of Scotland Horticultural, 204 ; **H**aywards Heath and Mid-Sussex Horticultural, 195 ; Hereford and West of England Rose, 194; Highgate Horticultural, 157 ; Horticultural Club, 137, 277 ; Hull and East Riding Chrysanthemum, 170 ; Hythe Gardeners' Association, 86 ; **I**pswich Gardeners' and Amateurs', 58 ; **K**ew Guild, 324 ; Keymer, Clayton and Hassocks Flower show, 87 ; Kirkcudbright Horticultural, 195 ; **L**angford and District Horticultural, 87 ; Leeds and District Market Gardeners', 167 ; Lewisham and District Horticultural, 156 ; Limpsfield and Oxted Gardeners' Mutual Improvement, 86 ; **M**anchester and North of England Orchid, 13, 27, 55, 68 111, 124, 180, 191, 251, 324, 356 ; **N**ational Chrysanthemum, 30, 83, 346 ; National Hardy Plant, 83 ; National Rose, 41, 236, 250 ; National Tulip, 278 ; Newcastle and District Horticultural, 55, 84, 139, 180, 263 ; Norfolk and Norwich Horticultural, 114 ; North of England Pansy and Viola, 240 ; **O**xted Gardening, 240 ; **R**eading and District Gardeners', 68, 83, 152, 166, 204, 251, 342 ; Reading Horticultural Branch of Young Farmers' Clubs, 27, 55, 124 ; Royal Caledonian Horticultural, 41, 96, 166, 221, 312 ; Royal Horticultural, 40, 69, 71, 96, 111, 124, 152, 178, 204, 237, 264, 302, 325, 341, 366 ; Royal Horticultural of Ireland, 14 ; Royal Oxfordshire Horticultural, 194 ; Royal Scottish Arboricultural, 111 ; **S**affron Walden Horticultural, 268 ; Saltwood Cottage Gardeners', 86 ; Société Royale d'Agriculture et de Botanique de Gand, 216, 233 ; Société Nationale d'Horticulture de France, 356 ; Southgate Rose, 170 ; South Oxford Horticultural, 86 ; Southwark Horticultural, 59 ; Sussex County Agricultural, 194 ; **U**lster Horticultural, 268 ; United Horticultural Benefit and Provident, 42, 111, 167, 221, 293 ; **W**akefield and North of England Tulip, 324 ; Walsall Flower, 156 ; Warrington Garden, 87 ; Watford Horticultural, 58 ; West Bridgford Garden Holders', 58 ; Windsor Rose and Horticultural, 142 ; Women's Farm and Garden, 311 ; **Y**ork Gala, 342
Soil : acidity of, 247 ; compost, 176 ; partial sterilisation of, 156
Solanum capsicastrum in the open, 287 ; S. cinereum, poisonous properties of, 281 ; S. hybridum, 115 ; S. Wendlandii, 272, 299
Sollya heterophylla, 287
Sophronitis Lowii, 44
Spinach, summer, 355
Spraying : dry, 262 ; successful, 330 ; with copper sulphur, 202
Spring awakening of arable land, 57
Spring flowers at Hampton Court, 259
Stafford, fruit exhibit at, 95
Stelis tristyla, 247
Stevia paniculata, 52
Stock, influence of, on scion, 53
Stones, prevention of decay in building, 267
Stove climbers, 108
Stranvaesia undulata, 23, 34
Strawberries, 5 ; red plant disease in, 360
Streptocarpus, 20, 272
Strike at Covent Garden, 208
Stylophorum diphyllum, 229
Sulphur and Black Currant mite, 268
Superintendent : at Aberdeen's parks, 330 ; at Greenwich Park, 254, 333
Sutton Court, Daffodils at, 202
Sweden : British agriculturists to visit, 282 ; fruit culture in, 355
Sweet, Mr. James, presentation to, 359
Sweet Pea of Ceylon, the, 364
Switzer, Stephen, 230
Sylviculture, British, 113
Symplocarpus foetidus, 199 ,338
Synthyris, 21 ; S. reniformis, 91

T

Tannock, David (*Potato growing in New Zealand*), 129
Tansley, A. G. (*Practical Plant Ecology*), 346
Tecoma alata, 201
Tenure of land for nine hundred years, continuous, 16
Teucrium fruticans, 9
"The Microscopical Theatre of Seeds," 178
"The Orchard and the Garden," 106, 138, 190
Thladiantha dubia, 53, 82
Thomas, the late Mr. Owen, 207, 312, 326
Tigridia Pavonia, 73
Timber : bog Oak, 198 ; Canadian, 114 ; resources, Imperial, 101
Tithe rent charge, redemption of, 16
Tithymals, 51
Tirley Garth Gardens, Tarporley, rainfall in 1922 at, 15
Town planning, 2
Town refuse as a fertiliser, 267
Trade notes : 14, 27, 55, 70, 84, 112, 139, 154, 180, 191, 206, 222, 252, 265, 312, 326
Tree planting in the United States, 282
Trees and shrubs, 9, 23, 34, 59, 89, 103, 161, 177, 185, 209, 243, 269, 287, 301, 317, 335, 352
Trees : buttressed and stilt-rooted, 174 ; for street planting, 352 ; the most profitable to plant, 108
Tribute by British horticulturists to Belgium's unknown soldier, 224
Tricyrtis hirta, 21
Tropaeolum tuberosum, 248
Tuileries gardens, Dutch bulbs in the, 269
Tulip growing, early tract on, 31
Tulips, 271 ; Darwin, 263
Turton, Mr. T., retirement of, 30

U

Uganda, mystery plants of, 36
United Horticultural Benefit and Provident Society : 42, 111, 167, 221, 293 ; treasurership of, 86
United States of America : import regulations, concessions in, 43 ; tree planting in the, 282
Usk Priory, Monmouthshire, 147

V

Vanda tricolor insignis, 90
Vegetable garden, 26, 54, 80, 123, 138, 150, 176, 203, 190, 212, 232, 248, 262, 276, 290, 322, 355
Veitch Memorial medal, 197
Veitch, Mr. H. Morgan, 58
Verbascum Miss Willmott, 52, 132
Veronica salicifolia, 9 ; V. Traherne, 132
Veronicas, hybrid, 67
Vicia herbacea, 157
Victoria, settlement scheme for, 207
Vines, grafting, 111
Viola Alannah, 299
Violas, 354
Viscaria, 258

W

Wages, Gardeners', 151, 166, 203, 232, 263, 291, 323, 340, 356
Wallace, Alfred Russel, Memorial to, 360
Ward, Mr. F. Kingdon : return of, from the East, 155 , seventh expedition in Asia, 22, 50, 71, 80, 107, 134, 162, 186, 214, 246, 300, 350
Waterfield, Mr. A., gallantry of, 2
Watsonias, hybrid, 285
Weather forecasts : 57, 313
Weeds, destruction of, by spraying, 240
Welsh garden, notes from a, 6, 230, 286
Wenman, Mr. W., retirement of, 85
Wheat, 329 ; and nitrogen fixation, 127
Whitton, Mr. James, retirement of, 239, 314
Wilde, M. Henri de, 194
Wilks, the late Rev. W. ,127, 155, 239
Winter of 1922–3, the, 225
Wireless lectures on gardening, 232
Wiseman, the late Mr. Wm., 72
Wisley : notes from, 19, 121, 163, 211, 297, 363; trials at, 44, 156, 331
Witches' broom on Silver Fir, 11
Wood and carpentry at Luxor, 263
Woolly aphis, immunity of Apple stocks to, 267
Worms, climbing, 212
Wright, the late Mr. S. T., 3 ; Memorial Fund, 114

Y

Yams, the hardy 54, 190
Year 1922, the, 1

LIST OF ILLUSTRATIONS.

A

ACHILLEA ARGENTEA, 183; A. Kellereri, 291
Aethionema iberideum, 195
Aggett, Mr. W. H., portrait of, 254
Angraecum mirabile, 17
Annual flowers exhibited by Messrs. Sutton and Sons at Chelsea, 315
Anthemis cupaniana, 7
Apples: Ball's Pippin, 67; Lord Hindlip, 165
Ash, canker of, 146
Astilbe chinensis var. pumila, 51
Auton, Mr. W., portrait of, 86
Azalea Albert-Elizabeth, adjudged the best new plant at the Ghent show, 211

B

BANANA, John White's drawing of the, 200
Barker, Mr. J. T., portrait of, 4
Bedford, Mr. Arthur, portrait of, 156
Benbow, Mr. Joseph, portrait of, 268
Black Currant, Bourdichon's figures of the, 92
British horticulturists at the grave of Belgium's unknown soldier, 224
Buddleia asiatica, 48
Bunyard Memorial Medal for fruits 367

C

CABBAGE, SKUNK; at Cambridge Botanic Garden, 199; fruit of the, 338; section through a fruit of, showing embedded seeds, 339
Camellia Jupiter, 93
Campanula calcicola, 320
Carnation Eileen Low, 297
Ceropegia Brownii, the home of, 36
Chiang-ka River, the, 350
Chrysanthemums: as grown for market, 3; Mrs. Jack Pearson, 65; W. H. Lincoln, 6
Clianthus puniceus albus flowering in the open in a Devon garden, 61
Clivias, Sir Geo. Holford's Gold Medal exhibit of, 163
Coutts, Mr. J., portrait of, 4
Crocus biflorus, 103; C. Sieberi, 73; C. versicolor, 105
Crombie, Mr. David, portrait of, 360
Currant, Black, Bourdichon's figures of the, 92
Cuttings rooted in acidic media, relative growth of, 244, 245
Cymbidium Merlin, Westonbirt var., 213
Cypripedium Chrysostom var. Amy Moore, 35
Cypripediums, a group of a large-flowered strain of, 133
Cytisus Dorothy Walpole, 269

D

DAFFODIL BULB, life cycle of a "broody," 66
Damyon, the cupola-shaped, snow-capped peak of, with Conifer forests in the foreground, 300
Decaisnea Fargesii, fruits of, 161
Durian: a tree bearing fruit, 259; fruits of the, 259

E

ENTEBBE BOTANIC GARDENS, view in the, 289
Erodium cheilanthifolium, 131
Eucalyptus haemastoma, 187
Eucharis grandiflora, well-flowered plants of, 231

F

FIR, SILVER, swelling caused by the Witches' Broom fungus on, 11
Fruit exhibit at the Stafford Fruit Show, 95
Fruits, a fine exhibit of dessert, 25

G

GALT, MR. ALEX. S., portrait of, 16
Gentiana Hopei, 323
Ghent show: plan of the British section, 217; the King and Queen of the Belgians at the opening ceremony, 216; views of the, 215, 235, 236
Gill, Mr. Richard, portrait of, 182
Globularia incanescens, 75
Grapes, a fine crop of, 81

H

HARTLESS, MR. A. J., portrait of, 4
Hay, Mr. John, portrait of the late, 84
Heracleum giganteum, 52
Hillier, Mr. J. Masters, portrait of, 296
Hydrangea Parsifal exhibited at the Chelsea show by Mr. H. J. Jones, 305

I

INCARVILLEA BEES' PINK, 318
Iris and water garden exhibited at Chelsea Show by Messrs. J. Carter and Co., 317
Iris Douglasiana var. Merton, 271; I. germanica, by an early sixteenth-century artist, 8; I. Marjorie Tinley, 361; I. Thundercloud 349
Irrawaddy river, the head-waters of the, 278
Irving, Mr. Walter, portrait of, 330

J

JEFFERSONIA DUBIA, 130
Jones, Mr. H. J., portrait of, 30

L

LAKE EMBANKMENT IN ROATH PARK, Cardiff, with formal flower beds, 117
Lambourne, the Rt. Hon. Lord, portrait of, 208
Lilacs, Rabel's illustration of, 336
Lilium auratum var. platyphyllum, 33; L. Davidii, 78; L. Davidii, as reconstructed by Mons. Faquet from the type specimen, 79; L. Duchartrei, creeping stem of, 77; L. Stewartianum, 275; L. Tenii, 274; L. Thayeræ, now considered to be L. Davidii, 79
Lily garden exhibited at the Chelsea Show by Messrs. R. Wallace and Co., 307
Lily, Rabel's illustration of a red, 337
Linum arboreum, a fine clump of, 209
Lowe, Mr. Joseph, portrait of, 100

M

McBEAN, MR. A. A., portrait of, 142
M'Hattie, John W., portrait of the late, 252
Magnolia Kobus var. borealis, 301
Marguerite, bed of the double yellow-flowered, 145
Matthews, Mr. C. M., portrait of, 2
Matthews, Mr. Edward, portrait of, 346
Messenger, Mr. W., portrait of, 5
Muli monastery, on a limestone plateau east of the Yangtze, 277

N

NARCISSUS BRIMSTONE, 225; N. Opera, 257; N. Prince Umbria, 189

O

ODELL, MR. JOHN W., PORTRAIT OF, 170
Odontioda Naomi, 272
Odontoglossum crispo-Solon var. Carmania, 321
Odontonia Baroness Schröder, 107; O. Olivia, as exhibited at the Chelsea Show, 302
Oncidium splendidum holoxanthum, 111
Orchid exhibit, part of Messrs. J. & A. McBean's, at the Chelsea show, 303
Osteomeles anthyllidifolia, 335
Oxalis enneaphylla, 109

P

PAEONIA EMODI FORMA, 365
Page, Mr. W. H., portrait of, 72
Papaver silvestris, from a painting by Jacques Le Moyne de Morgues, 149
Pear, prolification of, 19
Pear tree: grafted on Pyrus salicifolia, 38; grafted on the free stock, 39
Pentactina rupicola, 331
Perry, Mr. Amos, portrait of, 44
Pettigrew, Mr. A. A., portrait of, 114,
Pieris taiwanensis, seedling plants of, 63
Pineapple, John White's drawing of the, 201
Polystichum aculeatum var. gracillimum Cranfield, 137
Potato plant, the earliest known portrait of the, 260
Primula calciphila, 101; P. c. at home on the limestone cliffs in the Ichang Gorge, 241; P. chrysopa, 319; P. Delavayii, 333; P. denticulata, 173; P. erythrocarpa, 261; P. Inayatii in the rock garden at Glasnevin, 121; P. malacoides, 91; P. m., a new round-flowered form of, 203; P. sinensis, The Pearl, 91; P. stellata var. Giant White, 87
Psilotum triquetrum in the Cambridge Botanic Garden, 363
Pulmonaria angustifolia azurea, 122
Pynaert, Mr. Charles, portrait of, 282
Pyracantha Gibbsii, 23
Pyrus salicifolia, Pear tree grafted on, 38; P. Scheideckeri, 185; P. toringoides, fruiting branch of, 89

R

RABEL'S ILLUSTRATION OF LILACS, 336; of a red Lily, 337
Ranunculus glacialis, 157
Rhododendron bullatum, 243; R. insigne, 351; R. obtusum album, 227; R. Pink Shell, 325; R. phœniceum var. Tebotan, 255; R. præteritum, 143; R. prævernum, 159; R. strigillosum, 135; R. sutchuenense, 171
Roath Park, Cardiff: group of succulent plants in the conservatory, 115; lake embankment in, with formal flower-beds, 117; students' garden in, 119
Rock gardens at the Chelsea Show, 303, 306, 308
Roses: Capt. F. S. Harvey Cant, 299; David Lloyd George, as grown under glass for market, 273; Deception, 247; Mrs. Tresham Gilbey, 347; La France growing in Central Africa, 288
Rubber trees, a plantation of, 228; suitable for tapping, 229
Rubus biflorus var. quinqueflorus, 22; R. robustus, 50
Rudbeckia pinnata, 21

S

SALT WELLS AT TSA-KA-LO on the Mekong river, 277
Sander Memorial cup offered for the best new plant at Ghent, 210
Sanguinaria canadensis var. multiplex, 283
Saxifraga Kellereri, 47; S. longifolia, 353
Schinus Molle, fruiting branches of, 37
Sciadopitys verticillata, cones of, 59
Sisyrinchium filifolium, 129
Solanum capsicastrum, fruiting branches of, 287
Sophronitis Lowii, 45
Spring garden arranged by Messrs. J. Carter and Co., at Olympia, 151
Stone, the base of which is the only known habitat of Ceropegia Brownii, 36
Students' garden in Roath Park, Cardiff, 119
Succulent plants in the conservatory, Roath Park, Cardiff, 115
Symplocarpus foetidus, 338, 339; at Cambridge Botanic Garden, 199

T

THATCHER, MR. R. W., portrait of, 5
"The Orchard and the Garden": last page of, 106; title-page of, 106
Thladiantha, tubers of, 53
Trachycarpus excelsa at Usk Priory, Monmouthshire, 147
Tree: a typical swamp-forest, stilt-rooted, 174; buttressed tropical, broken by a storm, 175
Trillium undulatum, 249
Tulips: an old Dutch implement used for transplanting, 31; Darwin, in the formal garden at Mountain House, Chepstow, 263
Turner, Mr. C., portrait of, 4

U

USK PRIORY, MONMOUTHSHIRE, Trachycarpus excelsa at, 147

V

VEITCH MEMORIAL MEDAL, 197
Veitch, Mr. Harry Morgan, portrait of, 58
Veronica salicifolia, 9

W

WATSONIAS IN THE MELBOURNE Botanic Gardens, new hybrid, 285
Whitton, Mr. James, portrait of, 314
Wilde, M. H. de, portrait of, 194
Wilks, Rev. W., portrait of the late, 128

SUPPLEMENTARY COLOURED ILLUSTRATIONS.

Begonia Haageana (January 6)
Nepenthes mixta (March 3)
Nerine Bowdenii (June 2)

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CONTENTS.

Agricultural tribunal of investigation 3
Apple room, the 13
Begonia Haageana ... 1
Cannon Hill Park, Birmingham 8
Caustic fruit wash ... 13
Christmas flowers at Pyrford Court ... 2
Chrysanthemums: do they deteriorate? 7
Cultural memoranda—
  Planting climbing plants 5
  Strawberries 5
Events of the past year 1
Foreign correspondence—
  Distinguishing the sex of Ginkgo biloba ... 10
  Earliest hybrids of Gladiolus primulinus... 10
Gardening, some effects of the war on ... 12
"Gardeners' Chronicle" seventy-five years ago 3
Ghent Quinquennial Exhibition 2
Hardy flower border...
  Anthemis cupaniana... 7
  Campanulas 7
Hogg and florists' flowers 6
Indoor plants—
  Allamanda 5
  Forcing plants... ... 5
Ken Wood 2
National Rose Society's annual meeting ... 2
Orchids in 1922 10
Painters, early botanic... 8
Park official, gallantry of a 2
Raspberry stem bud moth 11
Sander memorial prize at the forthcoming Ghent show 2
Shrubs for the seaside, grey-leaved 12
Societies—
  Manchester and North of England Orchid ... 13
  Royal Horticultural of Ireland 13
Town Planning 2
Trees and shrubs—
  Pernettya 9
  Teucrium fruticans ... 9
  The Sea Buckthorn ... 9
  Veronica salicifolia ... 9
Week's work, the ... 4
Welsh garden, notes from a 6
Witches' broom on Silver Fir 11
Wright, Mr S. T., the... late 3

ILLUSTRATIONS.

Athemis cupaniana 7
Barker, Mr. J. T., portrait of 4
Chrysanthemum W. H. Lincoln: a finely-flowered plant of 6; a house of 3
Coutts, Mr. John, portrait of 4
Fir, Silver, swelling on caused by the witches' broom fungus 11
Hartless, Mr. A. J., portrait of 4
Iris germanica, a painting of, by an early sixteenth-century artist 8
Messenger, Mr. W., portrait of 5
Thatcher, Mr. R. W. portrait of 5
Turner, Mr. C., portrait of 5
Veronica salicifolia, a fine bush of 9

COLOURED SUPPLEMENTARY ILLUSTRATION: Begonia Haageana.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 38.2°.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 3, 10 a.m. Bar. 30.2; temp., 46°. Weather—Sunny.

1922.

Gardeners may look back with pleasure on the year that has just ended, for the results in gardens have been surprisingly good, and the satisfaction is the greater in that the wholesale losses of trees, shrubs and other plants which were expected to follow the unprecedented heat and drought of the previous year did not materialise. This was owing to the dull, sunless summer and autumn of 1922, and instead of trouble, we had one of the best garden years on record, for not only were crops of all kinds fully equal to the normal, and in many cases above the average, but we enjoyed the beauty of many plants which fructify only on rare occasions in our temperate climate. The prolific flowering and fruiting of plants of all kinds was common everywhere in Great Britain, due to the extraordinary degree with which the growth was ripened in the previous season, and those who attach great importance to the ripening of plants and the need for thin training in order that this may be brought about by sunshine and air, have had their contention fully justified. Perhaps the greatest surprise was the great wealth of all kinds of out-door fruits, for it is only on very rare occasions that fruitful years follow in succession; whilst the Apple harvest of 1921 was almost a record, that of 1922 was but little below it, and the large number of strong, healthy fruit buds betoken another excellent fruit year in 1923. Although the fruit crops were so good, the flavour of hardy fruits generally was very deficient, and this was especially noticeable in the case of Pears, which seem to require plenty of warm sunshine to develop their finest qualities. The decision of the Royal Horticultural Society, in conjunction with the Ministry of Agriculture, to undertake trials of varieties of fruits especially suited for commercial purposes is of interest to all fruit growers, and it is to be hoped that some of the meritorious varieties which are known to exist in isolated gardens and orchards will find their way to Wisley and have their merits tested in comparison with what may be termed standard sorts. Novelties amongst fruits have been shown fairly extensively at the R.H.S. meetings, but the standard required is a very high one, and few of them showed sufficient merit to warrant the recognition of an award. Messrs. T. Rivers and Sons received an Award of Merit for a distinct, new, early Cherry, of the Governor Wood type, but without the defect of splitting, which the old variety is very prone to. Apart from this, the only other fruits to receive awards from the R.H.S. were Apples John Standish, Laxton's Pearmain, Peter Lock, and Joybells. Perhaps the greatest fruit novelty of the year was a new Grape named Ecclesdon Manor, said to have been raised from the pip of a white Grape some thirty years ago. If this seedling Grape fulfils its promise, it should prove to be a valuable addition, and especially for growing in unheated vineries and conservatories. The crops of the kitchen garden may perhaps be classed as the outstanding ones of the year. Whilst in the winter of 1921 there was almost a famine in vegetables, and in green vegetables especially, gardens everywhere this winter are filled with winter greens, and the root crops have been amongst the best on record, the Potato yield surpassing that of any other since 1886, when returns were first collected, being more than one ton per acre above the average of the ten years 1912-1921. In some cases vegetables grew so large as to be coarse—Beets, for example—the great amount of growth being favoured by the dull, moist summer. The flower garden has yielded equally good results as the fruit and vegetable garden, and this has been reflected in the numerous exhibitions up and down the country. Roses were especially fine, and the Rose season was one of the longest on record. All the exhibitions of the National Rose Society were very successful, as were those of other floricultural societies, including the British Carnation Society, National Dahlia Society, the National Sweet Pea Society and the National Chrysanthemum Society. The show of the last-named Society was one of the best ever held under its auspices, and those competent to judge were of the opinion that finer blooms have never been shown at any Chrysanthemum exhibition than those exhibited on November 16 and 17 in the Horticultural Hall, Westminster. The large provincial shows, including those at Shrewsbury and York, have almost regained their pre-war importance, whilst the Centenary Exhibition of the Glasgow International Exhibition attracted exhibitors from all parts of the Kingdom, as well as a few from abroad. The Royal Horticultural Society held a full programme of meetings, all of which were unusually successful. The Chelsea Show was, as usual, the finest of the year, while the innovation of combining the fruit and vegetable exhibitions, together with autumn flowers, in one large show at Holland Park Hall was justified by the results; indeed, it was one of the most successful autumn exhibitions the Society has ever held. The fortnightly meetings at Vincent Square attracted large numbers of new plants, and many fine novelties received awards; the displays of Orchids were of exceptional merit, as will be gathered from Mr. O'Brien's summary on p. 10 of the Orchids shown during the year. The Manchester and North of England Orchid Society also enjoyed a most successful season, and its exhibitions continue to attract some of the finest novelties of raisers, as well as important groups.

Conferences on Irises were held at Vincent Square and at Paris, and, in connection with these conferences, Iris specialists exhibited largely and well, so that this flower received great prominence in the past year. In view of the difficulty of recognising the affinities of modern Irises and classifying them in their sections, Mr. Chittenden at the R.H.S. conference drew up a scheme for classifying the tall, bearded Irises according to their colours, for the special purpose of helping amateurs to arrange Irises in their gardens. The conferences organised by the R.H.S. have constituted some of the best work accomplished by the Society; the Conifer Conference, the Fruit Conference and the Primula Conference—to mention only a few—all added very materially to our knowledge of these subjects. The results of the several plant-collecting expeditions in China in recent years are beginning to be seen in the many new Chinese species which receive awards from time to time; the interesting narrative from Mr. F. Kingdon Ward, describing his latest expedition in China, which is being published in these pages, shows that that vast empire contains still further treasures for the garden. The year that has closed has robbed us by death of several prominent horticulturists, including Mr. H. J. Elwes, whose striking personality will be greatly missed, a gentleman who enriched our gardens with many choice plants, and was a valued contributor to the literary side of both horticulture and forestry; Professor Sir Isaac Bayley-Balfour, the eminent keeper of the Edinburgh Botanic Garden, whose knowledge of plants and their cultivation was most extensive; Mr. S. T. Wright, the capable superintendent of the R.H.S. Gardens; Mr. Hugh Dickson, the raiser of many excellent Roses; Mr. W. Iceton, one of the most successful florists of the period, and Mr. R. Lewis Castle, a brilliant writer and author on gardening, as well as a clever craftsman.

Our Coloured Supplementary Illustration.—With this first issue of *The Gardeners' Chronicle* for 1923 we present our readers with a supplementary, full page, coloured illustration of Begonia Haageana. This interesting and useful Begonia, though introduced to cultivation some time previous to 1887. is neither known so well nor cultivated so freely as its merits deserve. In a warm house, and under generous treatment. fine specimens of this handsome species may be grown to a large size. The big clusters of large white flowers are usually so heavy that unless supported the stems are apt to break, and in any case they assume a semi-pendulous position. But the beauty of the plant is not confined to its flowers; the large leaves are deep red on the underside, and reddish green above, while stems, peduncles and pedicels are all red and abundantly supplied with reddish hairs, some of the latter even appearing on the back of the sepals. The history of this species is no less interesting than the plant itself. In the *Bot. Mag.*, tab. 7.028, Begonia Haageana is figured and described under the title of B. Scharffii, and the statement is made that the plant was introduced by Miss (?) Haage and Schmidt "from the Peninsula of Destierro, in the Island of St. Catherine, South Brazil, and it is possibly a native of the Sierra de Catherina in the interior of the province of that name. It is one of the most magnificent species of the genus. The Royal Gardens are indebted to the importers for the plant from which our figure was taken. It flowered for the first time in September, 1887, producing female flowers; these were followed in October by male flowers and female buds, and in November again by another crop of male flowers." These remarks indicate the free-flowering habit of B. Haageana, but its season of floral beauty may be extended almost indefinitely by rooting cuttings at various seasons of the year and by giving some plants cooler treatment than others. Adverting to its history, however, we find this set forth in *Gard. Chron.* of October 5, 1889, p. 388, as follows :—" Begonia Scharffiana and B. Haageana.—These two plants have been confused with each other. They have both been in flower at Kew, are perfectly distinct, and the names for each have been decided as follows :—In 1887 Messrs. Haage and Schmidt sent three kinds of Begonia to Kew for name, and they appear to have sent them also to Dr. Regel for the same purpose. These Begonias have been introduced from Brazil by Dr. Scharff, and Mr. Haage, of Messrs. Haage and Schmidt, desired that one of them should bear his name. The plant selected for this compliment at Kew, however, was not the same as Dr. Regel had chosen, but as his description of B. Scharffiana was published before that of B. Scharffii appeared in the *Bot. Mag.*, Dr. Regel's name must stand. B. Scharffiana of Regel is described in *Garten Flora*, 1888, p. 127. It has large, fleshy leaves, black-green above, crimson beneath, and covered with hairs; the stipules are very large, and the flowers are clustered on long, drooping peduncles. This is the plant which Messrs. Laing and Sons have distributed as B. Scharffiana. B. Haageana of Kew is the plant figured in *Bot. Mag.* under the name of B. Scharffii. It was exhibited under the former name at one of the meetings of the Horticultural Society in July, 1887. It is one of the very finest of the evergreen, flowering Begonias, and is certain to become a popular garden plant. A third plant received along with the above has the habit of B. Scharffiana, but it has smaller leaves and flowers, and is a much less ornamental plant. It is called B. Scharffiana var. minor."

Our Almanac for 1923.—We propose to publish the *Gardeners' Chronicle* Almanac for the year 1923 with our issue of January 13. In order to make it as useful as possible for reference, we shall be obliged if secretaries of horticultural, botanical and allied societies, or any of our correspondents, will send us by first post on Monday, January 8, the dates of exhibitions and meetings for the coming year.

Christmas Flowers at Pyrford Court.—Writing under date of December 28, 1922, Mr. W. Auton, gardener to Lord Elveden, Pyrford Court, Woking, informs us that although the mean temperature during November and December was comparatively low at Pyrford, growth continued and prolonged the flowering period of many late-flowering plants. At the same time many spring-flowering subjects opened their blooms considerably in advance of their normal season. The following list of garden plants noted in flower out of doors on Christmas Day is interesting, representing, as it does, almost every season of the year: Achillea tomentosa, Armeria canescens, Ajuga alpina, Andromeda floribunda, Anemone coronaria var., Arabis albida, Arbutus Andrachne, Aubrietia deltoidea, Calendula vulgaris, Campanula garganica, Chimonanthus fragrans, Choisya ternata, Cheiranthus Cheiri, Daphne Blagayana, D. Mezereum, Dianthus fragrans, Eranthis hyemalis, Erica codonodes, E. arborea, E. mediterranea, Fragaria collina, Grevillea rosmarinifolia, Hamamelis virginica, Helleborus niger, Iberis gibraltarica, Ionopsidium acaule, Iris unguicularis, Jasminum nudiflorum, Kniphofia aloides, Lithospermum prostratum, Lupinus polyphyllus, Potentilla alpestris, Primula japonica, Prunus subhirtella, Pyrus japonica, Romneya Coulteri, Rosmarinus officinalis, Spiraea Thunbergii, and Viburnum Tinus. Antirrhinums, Chrysanthemums, Daisies, Primroses, Polyanthuses, Stocks, Pansies, Violas, and Roses in variety were also in flower, while numerous varieties of native plants were found flowering out of their usual season.

Mr. C. M. Matthews.—The Council of the Chamber of Horticulture was fortunate when, in 1920, it needed a new secretary and was able to secure the services of Major C. M. Matthews. Although his previous experience was more agricultural than horticultural, his training fitted him for his new post. During his period of office Mr. Matthews has not had an easy time, as post-war conditions made the conduct of commercial horticultural activities extremely difficult. Government regulations, railway freightage, labour rates, imports and exports, and many other matters had to be considered in connection with Government departments and other authorities, consequently the activities of the Chamber of Horticulture and its affiliated associations were considerable. Moreover, the Chamber was taking over new offices in Bedford Square, so Mr. Matthews came into office at a very busy and critical time. Those who are acquainted with his work know that he has fulfilled his duties in a quiet and thorough manner to the great advantage of commercial horticulture. When seventeen years of age Mr. Matthews entered the office of Lord Winchelsea's National Agricultural Union, where for about six years he was engaged in the organisation of the branches of the Union and in arranging conferences in all parts of the country. Later, when the Union was absorbed into the Agricultural Organisation Society, Mr. Matthews left London and started farming on his own account. In 1908 he became secretary of the East Kent Conservative Association, and acted as political agent to the Rt. Hon. A. Akers Douglas, and thus he gained a wide knowledge of parliamentary matters and experience as a public speaker, all of which have been of advantage in the work of the Chamber of Horticulture. As an organiser Mr. Matthews possesses unusual ability, and at the outbreak of war he was given a commission in the army; because of his knowledge of agricultural and railway matters he was attached to the Forage Department of the War Office. Later, he was promoted to the post of District Purchasing Officer for supplies in Lincolnshire, and eventually received the rank of major.

MR. C. M. MATTHEWS.

Government Inquiry as to Prices.—The Departmental Committee appointed by the Government to inquire into the methods of selling and distributing agricultural, horticultural and dairy produce, will meet on January 10, and with a view to making arrangements as to witnesses and evidence the Chamber of Horticulture convened a conference of all sectional interests. The organisations sending representatives to this conference were the Federation of British Growers, National Farmers' Union, Lea Valley Growers, British Glasshouse Produce Marketing Association, North-West Kent Growers, Spalding and District Growers, and the Chamber of Horticulture.

Gallantry of a Park Official.—The King has approved of the award of a medal of the Order of the British Empire to Mr. A. Waterfield, one of the keepers of Richmond Park. In April last he captured two men who were in possession of firearms. He saw them near the Robin Hood Gate and chased them, and, as he drew close to them, one fired at him, but he wrenched the gun from the man and captured them both. One of the men proved to be a housebreaker and was sent to a Borstal institution.

Kew Gardeners' Social Gathering.—The young gardeners at Kew have arranged a social evening for the 19th inst., at 7 p.m., in St. John's Hall, Richmond. The programme includes a whist drive and dance, and refreshments will be provided. The Secretary, Mr. A. Birkinshaw, Royal Gardens, Kew, will be pleased to hear from old Kewites wishing to attend.

Appointment at Kew.—Mr. Gerald Atkinson has been appointed by the Ministry of Agriculture, as from September 11, 1922, artist in the Herbarium at Kew, in succession to Mr. A. Kellett. Mr. Atkinson received his training at the School of Arts, Hull.

National Rose Society's Annual Meeting.—The forty-sixth Annual General Meeting of the members of the National Rose Society, which is to be held at Caxton Hall, Westminster, at 2.30 p.m. on Tuesday, January 16, will be of special interest, because, in addition to the ordinary general business, the Treasurer, Mr. Preston-Hillary, will give notice of motion "That the Council be instructed to take the necessary steps with a view to obtaining, if possible, a Royal Charter of Incorporation." Members of the society are cordially invited to tea and light refreshments after the meeting, and after tea Mr. E. J. Holland will give a short lecture on "Scented Roses."

Ken Wood.—The Ken Wood Preservation Council has completed the purchase of one hundred acres of the Ken Wood Estate, adjoining Hampstead Heath and near to Parliament Hill Fields. The purchase price is £1,350 per acre, and the whole of the money has been raised by voluntary subscription. The land has been temporarily vested in three trustees, but steps are being taken to transfer the ownership to the London County Council at the earliest possible date. The land to be actually transferred to the Council will be from ninety to ninety-five acres; the small area remaining will be sold as garden or as park land, and will not be built on. No part of the woodlands has been acquired, but a desire has been expressed that they shall be secured as a bird sanctuary.

Sander Memorial Prize for the Best New Plant at Ghent in 1923.—With the New Year more rapid progress is being made with arrangements for the Great Quinquennial Exhibition of the Société Royale d'Agriculture et de Botanique de Gand, to be held at Ghent from April 14 to April 22, 1923. Among the special prizes offered for competition is one in memory of the late Mr. H. Frederick Sander, the famous Orchid specialist, of St. Albans and Bruges. This is a silver cup of the value of one thousand francs, presented by Messrs. Sanders, sons of Mr. H. F. Sander, to be offered for the best new plant, flowering or non-flowering, not yet in commerce, and not yet having been shown at any Ghent Quinquennial Exhibition.

Town Planning.—As town planning is a subject of great importance and interest at the present time, and especially to garden lovers who desire to see every town and city in the enjoyment of ample open spaces and public and private gardens, the lecture on "Zoning in the Control of Large Cities," which Mr. F. W. Hunt is to give at the Surveyors' Institute, Great George Street, Westminster, on Monday, January 8, at 8 p.m., should be well attended.

A Gardener's Jubilee of Service.—Mr. Charles Herman, an employee in the gardens of Earl Temple, at Newton Park, near Bath, has just completed 50 years' service without having been once late. In honour of the event, the Earl and Countess of Temple have presented Mr. Herman with a clock inscribed as follows:—"Presented to Charles Herman by Earl and Countess Temple on the completion of 50 years' service in the Newton Park Gardens, January 1, 1923." Lord Temple, addressing the recipient, said: "This shows a fine record of faithful service; and in these times of unrest is a splendid example of the mutual esteem, loyalty, and affection which exists between masters and their employees." The Earl added that two other employees on the estate would shortly reach their jubilee of service.

Agricultural Tribunal of Investigation.—The Prime Minister has appointed a Tribunal of Investigation into the argicultural problem in accordance with the undertaking given by him in the debate on the Address in the House of Commons. The Tribunal will consist of the following economists, viz.:—Sir William Ashley, Professor of Commerce and Vice-Principal of the University of Birmingham; Professor W. G. S. Adams, Gladstone Professor of Political Theory and Institutions, Oxford; and Professor D. H. MacGregor, Drummond Professor of Political Economy, Oxford. Mr. C. S. Orwin, Director of the Institute for Research in Agricultural Economics at Oxford, has been appointed Agricultural Assessor to the Tribunal, and Mr. D. B. Toye, of the Ministry of Agriculture and Fisheries, will act as secretary.

Appointment for the Ensuing Week.—Wednesday, January 10.—East Anglian Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years ago.—*Horticultural Society's Garden, Turnham Green.* The Orchid house here looks well, even at this season, the increased size and health of the plants speaking favourably of the comparatively cool and dry treatment to which they have been, and are, of course, still subjected. Several of them were in bloom, among which were plants on blocks of Epidendrum Skinneri, whose beautiful purple flowers, being produced nearly all the year round, render it one of the most desirable of all Orchids for small collections. Phalaenopsis amabilis, which is scarcely behind it in the abundance and duration of its blooming, was also displaying its glorious blossoms. It may not be known to all that of this there are two varieties—one much smaller flowered than the other, a fact amateurs should bear in mind when making purchases. In the same collection were also in bloom the white lipped Odontoglossum Bictoniense, the West Indian Brassavola nodosa, the pretty little orange-flowered Sophronitis cernua, Cypripedium insigne, and C. barbatum. It may, perhaps, be worth mentioning in regard to the latter that in the same sheath from which one of the flowers proceeded, another flower-bud had formed, which looked as if it would expand and succeed its predecessor. The immense mass of Laelia superbiens in the large stove will again soon be in bloom. It has flower spikes on it, each from four to five feet in length. It is expected that it will this time realise all that has been said of it. Aechmea discolor, Vriesia psittacina, and other plants nearly related to the Pine-apple were in flower. This is a class of plants to which cultivators in general have not hitherto paid sufficient attention, their season of blooming, bright colours, and length of time they remain in beauty being desiderata not to be overlooked. Justicia flavicoma, also a useful plant at this season, especially on account of its colour, was in flower; and in the same house was a new plant named Sericographis Ghiesbrechtiana, perhaps better known by the nursery name of Aphelandra Ghiesbrechtiana. It looks as if it would be a useful winter-flowering plant, producing little spikes of bright red blossoms from the axils of the leaves, which, being of a deep green, set them off to good advantage. Various other winter flowers, as Euphorbia jacquiniflora, Gesnera zebrina, etc., were also in blossom. *Gard. Chron., January 1, 1848.*

THE LATE MR. S. T. WRIGHT.

With characteristic generosity, the Council of the Royal Horticultural Society have subscribed £100 toward the fund which, on their initiative, is being raised to commemorate the late Mr. S. T. Wright's long and devoted services to horticulture and to the Society, and to provide much needed assistance to his widow. The subscriptions to the fund already received by the Royal Horticultural Society, and set forth in the accompanying list, amount to nearly £170, and there can be little doubt but that the late Mr. S. T. Wright's many friends who have not already subscribed to the fund will be glad to begin the New Year by adding contributions which will both testify to their enduring regard for the man, and their appreciation of the services which he rendered both as Superintendent of the Gardens at Wisley, and as supervisor for many years of the arrangements for the Society's exhibitions at Temple Gardens, Holland Park, and Chelsea, and the fortnightly shows. There are few among those who have enjoyed the Society's exhibitions who are not aware how much Mr. Wright's imperturbable urbanity contributed to their success, and there is no one who visited Wisley during Mr. Wright's tenure of office there whose visit was not made the more enjoyable and memorable by his pleasant chaperonage. To walk round the garden with Mr. Wright was a liberal education. He knew every plant and loved them all with a paternal discrimination. Few men have had a larger opportunity of helping professional and amateur gardeners, and none has availed himself more fully of that opportunity. Mr. Wright's work in the service of the Society extended over many years, both at Chiswick and at Wisley. Although a frugal man, it was not in his power to make full provision for his widow and children. We believe that, thanks to the pension scheme inaugurated by the Royal Horticultural Society, and thanks to savings made by Mr. Wright, some provision is already made for Mrs. Wright, but nevertheless, the fact remains that without further assistance life will be made very difficult for her. It is the hope of her husband's colleagues and friends that Mrs. Wright may be relieved of all financial cares, and they believe confidently that all that is needed to secure this end is to bring the knowledge that help is needed to all sections of the horticultural community.

The following subscriptions have been received for the fund that is being raised to help the widow of the late Mr. S. T. Wright. It is hoped that a sufficient amount will be subscribed by Fellows of the Society and others who wish to mark their appreciation of Mr. Wright's services to enable an annuity to be purchased for Mrs. Wright. Subscriptions should be sent to the Secretary, Royal Horticultural Society, Vincent Square, Westminster.

	£	s.	d.
The Royal Horticultural Society ...	100	0	0
Mr. C. Bewes	1	0	0
Lady Airedale	1	1	0
Mr. G. James		5	0
Mr. Birkenshaw	1	1	0
Messrs. Pulham and Sons	1	1	0
Mr. A. J. Cheverton		3	0
Mr. S. Morris	1	1	0
Mr. R. H. Crockford		10	0
Mr. G. Abbey		5	0
Messrs. Dobbie and Co., Ltd. ...	5	0	0
Mr. G. Carpenter		10	0
Lady Stanley	1	0	0
Sir Stuart Samuel	3	3	0
Mr. A. D. Cotton		10	0
Mr. J. Bray	1	1	0
Mr. H. K. Rutherford	1	1	0
Mr. T. Coomber	1	1	0
Mr. T. Lewis		5	0
Messrs. Robert Veitch and Son ...	2	2	0
Mr. E. Marsden-Jones		10	0
Mr. C. R. Fielder		10	0
Sir Harry Veitch	5	0	0
Messrs. Spooner and Son	2	2	0
Mr. T. E. Henwood		5	0
Mr. J. Rees		10	0
Mr. Wm. Smith	2	0	0
Mr. W. C. Slocock	1	1	0
Major Churcher	3	0	0
Messrs. W. Richardson and Co. ...	1	1	0
Mr. H. N. Ellison	1	1	0
Mr. G. Reuthe	1	1	0
Mr. G. S. Manvell	1	0	0
Sir Frederick Moore	1	1	0
Mr. and Mrs. Michael Stephens ...	21	0	0
Mrs. Edmunds	5	5	0
Dr. J. Aarons	1	1	0

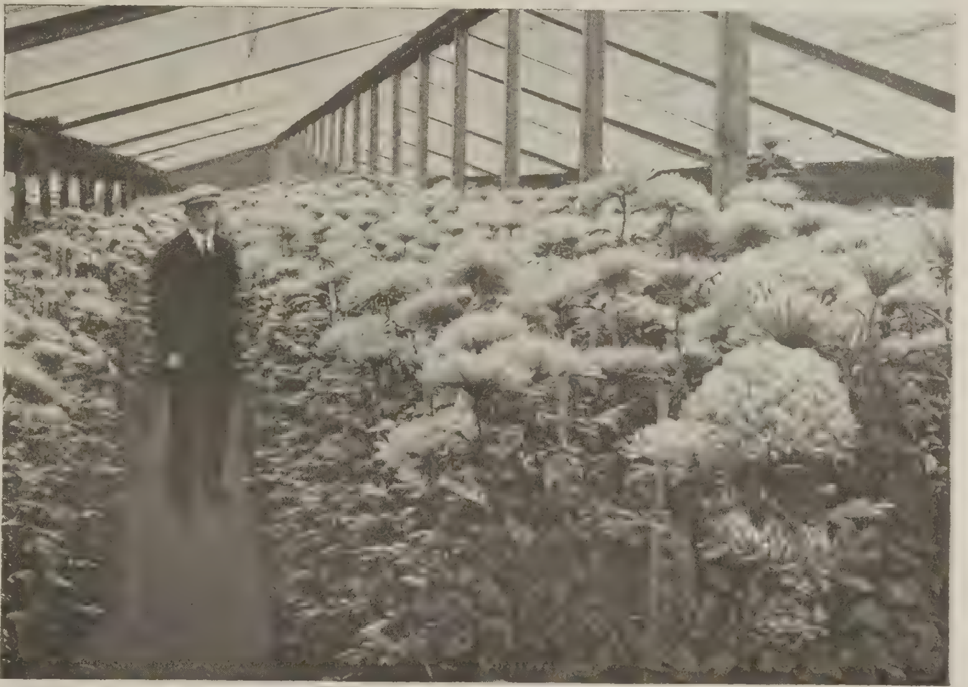


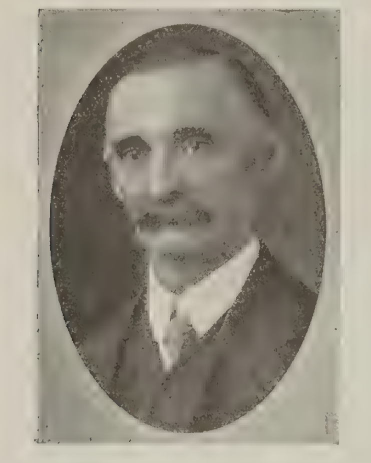
Fig. 1.—CHRYSANTHEMUM W. H. LINCOLN, AS GROWN FOR MARKET (see p. 6).

Publications Received.—*The Circling Hours*, and other poems. By Arthur William Smith. M. H. Bradshaw, 146, High Street, Harborne, Stafford. *The Journal of Pomology and Horticultural Science.*—Vol. III., No. 1. Edited by Edward A. Bunyard. Published quarterly by Headley Bros., 18, Devonshire Street, Bishopsgate, E.C.2. Annual subscription 15s., post free. *A Summer in Greenland.* By A. C. Seward. Cambridge University Press, Fetter Lane, E.C.4 Price 7s net.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.



Foreword.—Cleanliness being one of the greatest aids to good cultivation, the houses should receive a thorough cleansing during the early weeks of the present month. The glass, woodwork and walls should be washed thoroughly with strong soapy water and special care should be taken to remove, so far as possible, the green slimy matter between the laps of glass, as it obscures the light and often causes drip. At the same time it is advisable to thoroughly cleanse the plants before the busy potting season, as dirty, infested plants cannot thrive, and often a plant badly infested with any particular insect pest succumbs. As everything depends upon the conditions provided for the different species and hybrids which go to make up present-day collections of either warm, cool, or intermediate house Orchids, too much care and attention cannot be given in maintaining the most suitable conditions of warmth, air, and moisture. At this season, when work is not pressing, it is advisable to prepare a stock of the various fibres, peat, and Sphagnum moss, also to wash pots, pans, and crocks. Oak or Beech leaves should be collected, prepared, and stored in a dry and well-ventilated place. Blinds should be overhauled, those requiring repairs attended to, and any that need to be renewed secured at an early date.

Temperatures.—The following day temperatures should be maintained in the respective houses:—East Indian or warm house, 65° to 70°; Cattleya or intermediate house, 60° to 65°; Odontoglossum or cool house, 55° to 60°. Where large numbers of Orchids are grown, a house or two is usually kept a few degrees higher than normal for the accommodation of some particular plants; but for general purposes the different temperatures given will answer all purposes. No effort should be made to hasten the plants into growth by maintaining a high temperature, and I am convinced that many Orchids will succeed even in a lower temperature than is usually employed. Plants grown in high temperatures during the winter are more liable to receive a check through a sudden fall of the temperature during a very cold night than plants grown under cooler conditions. With the cooler conditions, the atmosphere should be maintained in a drier condition, and no harm will accrue from a considerable fall in temperature during extremely cold weather, provided the atmosphere is dry and the temperature does not remain at a low degree for too long a period. Where the raising of seedlings is attempted, fluctuation of temperatures must be prevented, as a steady, growing atmosphere is necessary at all times. A most important detail in the management of Orchid houses is that the lowest reading of the thermometer in the houses during the twenty-four hours should be in the early morning, with a gradual rise until mid-day, and then a gradual reduction in warmth until the night temperatures are reached. Fire heat may be economised where lathe blinds are used by letting them down at night, or by putting coverings of the different materials supplied for the purpose on the glass, but these should always be removed as soon as possible in the morning, as it is essential that the plants should receive all the light possible at this dull season.

Ventilation.—Plenty of fresh air is necessary for keeping the atmosphere of the different houses in a sweet, healthy condition. Always keep one or more of the ventilators open, if only for an inch or so, as even exotic plants need plenty of pure air. In the admission of air to the houses, care must be taken that draughts are not caused, as these are most injurious. Too much care cannot be observed in providing suitable conditions for plants under glass, especially during the dull, short days of winter, as without proper attention to these details success will not be attained.

THE HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Foreword.—With the New Year fruit-growers have made their notes from last year's experience, including those on the growth, fruiting and behaviour of various hardy fruits under their charge. Apple and Pear trees were never so free of fungous and insect pests, nor have they borne such luxuriant foliage as in the past year. Mildew was rather persistent on Apple Cox's Orange Pippin. Most fruit trees show good promise of fruiting freely in the coming season.

Planting.—Advantage should be taken of open weather and before the ground becomes very cold to complete the work of planting. All trees should be planted as shallowly as possible. The bottom of the hole should be well firmed with a rammer, and especially for Apples on the Paradise stock. For stone fruits lightly fork up the sub-soil if the ground is in any degree pasty, then spread the roots carefully, cutting back any that may be damaged. Wall trees should be planted about 6 inches from the wall not only to allow for expansion of the stem, but also for the roots to be set in a moist medium. Where the water level is high or the soil heavy, the trees will grow more successfully and the fruits colour better, especially in the case of Apple Cox's Orange Pippin, if they are raised 6 inches above the general ground level. In these gardens large trees growing in ground over an uncongenial sub-soil became cankered; they were lifted and raised rather more than 6 inches, with the result that although some ot the large roots of a number of trees show above the surface, all the trees now yield better crops, and are freer from diseases and insect pests. If planted during winter fruit trees should be well mulched with straw litter to favour root action as much as possible before very severe weather sets in.

Bush Fruits.—Proceed with the pruning of bush fruits, but where birds are troublesome and Gooseberry bushes have to be tied up or treated with washes, the pruning of these may be deferred until later. All "big buds" should be removed from Black Currant bushes and burned.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Introductory Remarks.—It is generally conceded that cleanliness is all important in the successful cultivation of plants. If not already done, no time should be lost in putting the houses in order for the coming season. As light at this time is all important, the roof glass and side lights should be thoroughly washed. In the neighbourhood of London and other large towns, it is necessary to wash the roof glass outside on frequent occasions. The material on stages and benches, such as shingle and cinders, has an important effect on the health of the plants, therefore old, sour material should be removed and fresh clean material substituted. Where pea gravel is used, it should be washed and returned to the stage. All propagating cases should be cleaned and, if necessary, the old plunging material removed, and fresh substituted, first thoroughly spraying all parts of the cases with carbolic acid, using four ounces of acid to three gallons of water. All walls should be limewashed, using fresh lime for the purpose; to every three gallons of limewash add one pound of flowers of sulphur. Clean pots should be prepared, and a supply of loam, leaf-mould, and sand placed under cover.

The Seed Order.—The list of seeds required should be prepared and sent to the seedsman in good time. A few specimens of any new plants that it is proposed to grow under trial should also be obtained; it is well to try a few new plants each season, either from seeds or cuttings.

Climbers.—When the glasshouses are being cleansed it is a good opportunity to take down all climbers and prune or thin them as required. After cleansing them thoroughly they should be secured in position again; where mealy bug is present the wires should be rubbed with a rag soaked in paraffin.

Annuals in Pots.—Annuals are largely grown in most gardens for decorative work, and the seed is usually sown during September, the plants wintered in frames or cool greenhouses. Where this has not been done, good results may be obtained by sowing at this time. Schizanthus, Clarkias, Godetias, annual Chrysanthemums and Mignonette are all favourite subjects, but there are many others which will be noted in due course. Statice Suworowii is a beautiful decorative indoor plant, and it is surprising it is not more generally grown. This also may be raised from seed sown now.

Gesnera cardinalis.—The tubers of this plant should be started into growth. They may be laid out in boxes containing leaf-mould, or potted direct into small pots, using light, rich soil. Very little water is needed until the plants have started into growth, and made a quantity of roots. They will grow well in a temperature of 55° to 60°, and when in flower may be stood in the greenhouse. This plant is easily raised from seeds; if the latter are sown now the plants, if well grown, will flower during the autumn.

Forcing Plants.—Continue to place fresh batches of plants for forcing in a warm house in sufficient quantities to meet the requirements of the establishment.

THE FLOWER GARDEN.

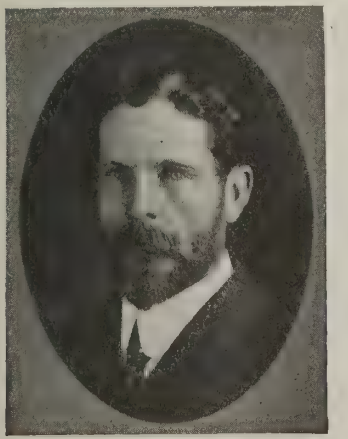
By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Planning the Summer Display.—Even at this early date it is not too soon to consider the summer bedding scheme, for however small a garden may be some forethought must be given as to what shall occupy the beds and borders during the ensuing year, while for large gardens it is very necessary, if shortage of stock and consequent failure are to be avoided. Having decided what material will be used the particular seeds should be ordered forthwith, as it will be necessary to sow certain kinds shortly. Any shortage in the supply of plants raised from cuttings should be ascertained, and steps taken to make up the required number. Bottom heat is needed for rooting cuttings at this time of year, and where there is no propagating case heated with pipes recourse must be made to a hotbed of leaves and strawy manure. Zonal Pelargoniums, Lobelias, Verbenas, Fuchsias, Iresines and Coleus should all be increased from cuttings where the stocks are deficient at this period of the year.

Autumn-sown Sweet Peas.—A row of Sweet Peas in these gardens sown during the first half of October includes sturdy specimens of 2 inches growth. If bad weather sets in the soil will be slightly ridged on both sides of the row as a means of protection. We grow this row in the kitchen garden because the plants are safer from wood pigeons than they would be in the flower garden during winter. The yield of flowers from this sowing is considerably earlier than from the first sown spring plants, and the blooms are useful for augmenting the few outdoor flowers then available.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.



Melons.—To obtain early Melons, a few seeds of good early varieties may be sown this month. Melon seeds may be sown singly or in pairs, in small pots filled with fresh fibrous loam, to which a little sand has been added. Insert the seeds upright, with the broad end upwards—this is a detail which should not be overlooked, as it reduces the number of deformed seedlings to a minimum. Place the pots in a propagating box or pit furnished with bottom heat, that will maintain a temperature of 70° to 75°. If sown in moderately moist soil no water will be required until the seedlings appear, when they should be removed to a position in full exposure to sunlight. Early Melons can only be produced in efficiently heated houses or pits, which should be thoroughly cleansed before introducing the hot-bed materials A good supply of fermenting material should be prepared in readiness to make up the hotbed when required. If the soil to be used is stacked out of doors it is advisable to place it under cover forthwith. I have for many years used a compost consisting of sandy clay with a liberal addition of old plaster rubble and wood ash. To produce extra early fruits it is preferable to grow the plants in 12-inch or 14-inch pots; these should be stood on inverted pots, and the plunging material placed around them. Ample drainage should be provided, as the plants will require a considerable amount of water during the growing season. The day temperature should range from 70° to 85°, with sun-heat; the night temperature should be about 65°, according to the weather.

Strawberries.—The majority of growers start their first batch of pot Strawberries in the New Year. They may be grown on a shelf in a recently started Peach house, or, where brick pits are available, the plants may be placed over a bed of fermenting leaves, the gentle warmth of which will stimulate the roots into activity and prevent an early attack of red spider. Prior to introducing the plants indoors remove all dead and decaying foliage, and, if necessary, make the soil firm round the sides of the pots. It is also necessary to inspect the drainage hole, which occasionally becomes blocked, and thus prevents the free passage of water. In the early stages of forcing the plants require careful watering; an excess of moisture at the roots is most harmful. Later, when growth becomes active, an abundance of water will be necessary.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

The Seed Order.—The seed catalogues for 1923 should be gone through, the necessary items ticked off, and the order dispatched forthwith. Varieties that are suited to the neighbourhood should be mainly relied on, and a few of the newer sorts tried for comparison. When the seeds arrive, place them in separate compartments to be readily accessible when required, and, above all, keep them in a dry place.

Protection of Crops.—We may now expect cold weather, and it will be wise to have protecting materials ready to hand. Long stable litter and Bracken Fern are useful for covering Celery, Globe Artichokes and Broccoli. In cold districts Broccoli should be laid with the heads to the north. To do this, take out a spit of soil on the north side of the plants, bend them over, and replace the soil behind them, packing it firmly around the stem, and then cover the plant closely with the litter. Celery and Artichokes should only be covered in very severe weather, as they will withstand a certain amount of frost. The covering should be removed immediately the weather turns mild.

Onions and Leeks.—To obtain large specimens of these vegetables the seed should be sown now in well-drained boxes in light friable soil, and placed in a warm house to germinate. Slightly cover the seeds and water the soil with a fine rose can, placing a sheet of glass and paper over the seed pan to conserve the moisture.

CULTURAL MEMORANDA.

PLANTING CLIMBING PLANTS.

This season of the year offers a good opportunity for planting climbers in the positions where they are to be grown on. Where they are set at the foot of a wall, care should be taken to make sure that there is sufficient good soil for the young plant to make free growth. If any doubt exists on this matter, excavate a large hole, and fill it with fresh soil, also when planting, place around the roots some rich compost such as old potting soil. There are many beautiful plants that make fine subjects when trained up poles in shrubberies, some are evergreen, others deciduous, but all are worthy their positions: Clematis of various sorts, Holboellia, Akebia quinata, Honeysuckles, especially Lonicera tragophylla, L. ciliosa, and L. sempervirens; Periploca graeca; various Vines, especially some of the beautiful species from China and Japan, such as Vitis Coignetiae, V. pulchra, and V. Thunbergii, which are splendid for this form of decoration, and to these may be added the various climbing Roses. For furnishing walls there are many very interesting plants that may be employed; some are suitable for furnishing very high walls, such as species of Vitis, many of which are self clinging; the Ivies (Hedera) with their pretty variegated foliage; Solanum jasminoides, Berberidopsis corallina (suitable for a north or east wall); Clematis, including C. montana and its varieties, and C. nutans. Others suitable for low walls are the Loniceras, Garrya, Hydrangea quercifolium, Billardieras, Actinidias, Celastrus, Lardizabala, Smilax, Ceanothus and Escallonia. Many climbing subjects are exceedingly useful for clambering over tree trunks, and old tree roots. For such purposes the common Honeysuckle, Lonicera Periclymenum, L. Henryi, Celastrus, and Clematis, such as C. montana, and C. tangutica, are all suitable. *E. Beckett.*

STRAWBERRIES.

Early plants of Strawberries in very small pots will soon be sending up their flower trusses, and when they approach the flowering stage they should be moved to the lightest and most airy part of the house, as being the most favourable to the setting of the fruit. Fresh air from the time they are introduced until the fruit begins to swell is imperative, and yet a certain amount of warmth must be maintained. Watering throughout the early stages is a very important matter, for much as the Strawberry likes root-moisture and resents drought, serious mischief may be the outcome of giving the roots too much moisture when the plants are in flower *H. M.*

INDOOR PLANTS.

ALLAMANDA.

The current season's shoots of this beautiful stove or intermediate house plant may now be pruned to within three or four buds. For the next few weeks keep the roots comparatively dry, to allow the plants a rest before again starting them into growth.

FORCING PLANTS.

In gardens where flowers are required in quantity during the winter, timely arrangements should be made to produce them. Early potted bulbs of Roman and Dutch Hyacinths and early varieties of Narcissi should be stood near the roof glass for a few days before finally placing them in the forcing pit. Early varieties of Tulips may also be included if they are sufficiently advanced, but unless Tulips are required specially early these should not be submitted to hard forcing. Large specimens of Lilac, Viburnum, Wistaria, Laburnum, and Azalea mollis may be placed in a vinery that is just being started, and removed later to the flowering house. Clumps of Spiraea astilboides floribunda may be placed in gentle warmth; but the forcing of this plant should be done gradually. *P.*

NOTES FROM A WELSH GARDEN.

ONE of the greatest charms of the hardy Heaths is that a fairly representative collection will provide flowers from January to December. Last year we were certainly favoured with a remarkably mild autumn, which in part accounted for the late flowering of several varieties. But even in a normal season we may always count upon a good show of Erica ciliaris and E. stricta right up to Christmas, and, as often as not, there will be a goodly number of the big white globes on St. Dabeoc's Heath (Daboecia polifolia alba), as well. Before these have passed out of bloom, the winter-flowering series opens with E. darleyensis, to be followed closely by E. carnea and E. mediterranea. The first of these and the white form of E. carnea had several sprays fully expanded on December 21 last. But, quite apart from the bright colours afforded by these plants, the foliage of a grouping of Heaths is always a charming feature of a winter garden.

Arbutus Menziesii is another subject which is never more appealing than in the depth of winter. This species sheds its old bark so much more completely than others of the same genus that, instead of lingering in a shabby, peeling condition, the stem and branches are transformed in a few weeks to a uniform nut-brown, so clean and smooth that they look as if they had been sand-papered. In contrast to this, the leaves, much larger than those of A. Unedo, are a strikingly vivid and burnished green. A. Menziesii must, however, give place to the better-known species in the size and colour of its fruit.

Two Conifers which never fail to arrest attention just now are Cryptomeria japonica and Cupressus macrocarpa, var. aurea. Both are exceptionally elegant in habit, and the pale grass-green of the one, with its ruddy stems, and the gold of the feathery plumes of the other are very comforting in a wintry landscape. Neither of these has ever been injured in our winters, and they have had to endure over 20° of frost. C. japonica, var. elegans, however, is very unreliable, dislikes cold wind, and is in every way a less desirable tree than the type. The latter, indeed, is probably much hardier than is generally supposed.

My last remark might also be applied to Lithospermum rosmarinifolium. This splendid species has been in bloom since early November, and at Christmas was covered with its large blue flowers, some of them with seven petals and nearly as big as a shilling, whilst in purity and depth the colour left nothing to be desired The fine and glossy green of the foliage affords a good setting for the blossoms, and a well-grown plant, filling the spaces between some rugged lumps of limestone or other rock, is irrestibly charming. That this species enjoys lime there can be no doubt. It also likes a stony root-run. Though we are some miles from the sea, and not infrequently suffer the loss of other half-hardy South European plants, this Lithospermum has never given any trouble.

The gayest spot in the rock-garden for a long while has been a clump of Viola gracilis, var. Lady Crisp. Other allied varieties, notably Perry's Yellow, bloomed until unusually late, but when winter arrived Lady Crisp was as vigorous as ever, and, unless something very unusual in the way of weather comes along, it looks as though the patch of clear, blue-lavender blossoms would continue until the days are lengthening.

Two little Sedums which are more interesting in winter than at any other season are S. brevifolium Pottsii and S. amplexicaule. It is now that the white mealiness which covers the stems and leaf bases of the former—a tiny thing about one inch in height—assumes that cold glacier-blue tint which makes this plant so delightful a companion to the moss and lichen of some hoary rock in whose barren chinks it will readily grow. As for the other, S. amplexicaule, it wraps its verdure in a sheath of straw-coloured thatch and pretends to be dead when summer is here, opening only the golden flowers which look so big for such a mite. But when autumn comes it throws off the mask and breaks into little tufts of leafage, which are extremely dainty, a pure emerald green, and in this dress it sees the winter through.

Another rock-garden subject which appears at its best in winter, provided the rain is not too excessive, is Achillea Kelleri. This is a very lovely plant, which makes a tuft of many long and graceful, narrow leaves, so finely cut and so silvery that they look like pieces of the finest filigree work. Like many other grey or white-leaved plants, A. Kelleri becomes greener in summer, but it bears a head of white flowers at that season, more worthy than that of many of its clan. *A. T. Johnson, Talycafn, N. Wales.*

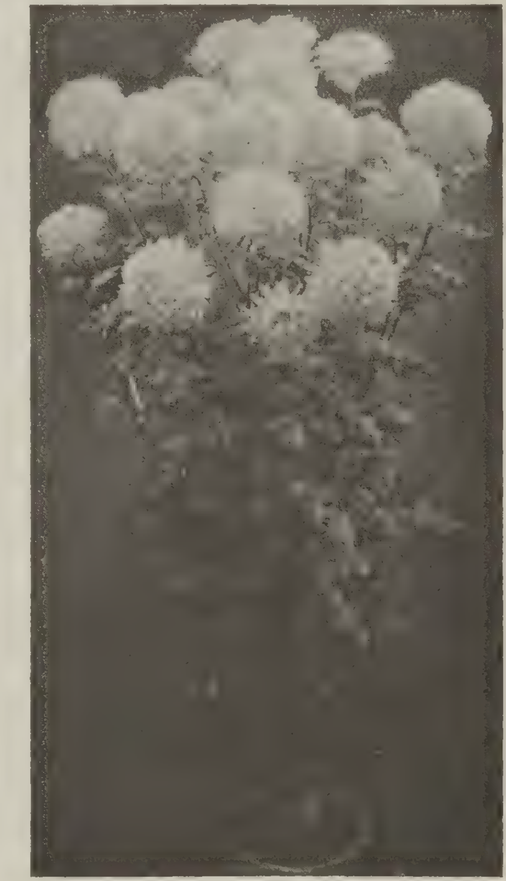


FIG. 2.—A FINELY-FLOWERED PLANT OF CHRYSANTHEMUM W. H. LINCOLN.

DO CHRYSANTHEMUMS DETERIORATE?

AMONG growers of Chrysanthemums one often hears the remark that a certain variety has deteriorated to such an extent that it is no longer worth cultivating. Such a remark is made regarding various florists' flowers, but especially in regard to Chrysanthemums, and when it is repeated often enough there are those who believe it is true. Raisers of new varieties may regard such observations as good news, for without some encouragement in the form of orders they would not find the raising of new varieties profitable. There is a tendency on the part of certain people to put their faith in a new variety (rather than an old one), even before it has been fully tested; the writer knows full well that there is a large amount of pleasure to be derived from growing novelties, but where it is a matter of business such a policy is not wholly to be recommended.

Readers must not infer from these remarks that new varieties should not have a trial; far from it. They should be tried, as it is only by comparison that their true value can be estimated, and one season's trial is not sufficient. Even an expert grower may be misled the first season, so that any variety which promises some distinct advance over an older one should be tried again and again until correct methods of cultivation and favourable seasons bring out its real merit; then the time is ripe for growing it in quantity.

In looking through a list of varieties of Chrysanthemums suitable for late blooming, a grower is apt to be impressed by the number of varieties that have been in existence for quite a long time, as to-day some of them more than hold their own in popular estimation for market purposes. The most noticeable varieties are Tuxedo, Framfield Pink, W. H. Lincoln, and White and Yellow Thompson. The writer cannot state quite how long these varieties have been in existence, but it is a fact that two or three of them have been grown for more than thirty years. This goes far to controvert a too general statement that varieties deteriorate or degenerate. Is it not a matter of more care in the treatment and selection of stock, coupled with a thorough knowledge of the requirements of each variety?

No variety—old or new—can or will put up with slipshod methods of propagation and cultivation over a series of seasons without showing signs of declining; in such cases it is not the fault of the variety, but of the methods employed.

In passing it may not be out of place to add that new varieties also suffer at the outset (particularly those that show great promise) by over propagation, and some two or three seasons are needed to eliminate or overcome the weakening tendency caused by excessive propagation.

Raisers and distributers would be well advised to hold a first-class variety sufficiently long to enable them to meet all demands by means of healthy root cuttings rather than spoil its chances of ultimate popularity by sending out plants that have been robbed of half their vitality by over propagation. Weak plants can never do justice to the variety, however good, and thus it is handicapped at the start. The accompanying illustrations (Figs. 1 and 2) show how at least one of the old varieties —W. H. Lincoln—is still grown extensively, and does well; the single plant was photographed just before Christmas, 1922, and the house a fortnight earlier. *Grower.*

HOGG AND FLORISTS' FLOWERS.

I AM glad that Mr. Brotherston (p. 268, vol. LXXII.) has called readers' attention to Thomas Hogg and his book about florists' flowers. There is no doubt he was a chatty writer, and his numerous asides or deviations from his subject are often humorous and interesting. I would like to add two, also taken from the second or 1822 edition of his Treatise. When discussing the merits and demerits of the Dutch mode of gardening on pages 102 to 105, and of beauty in masses—a matter on which I am one with the old schoolmaster—he says: "Mrs Siddons, the celebrated tragic actress, is a great admirer of this mode of planting." "Her favourite flower was the Viola Amoena, the Pansy, or Common Purple Heart's-ease, and this she set with unsparing profusion all round her garden." As I visualise it, it was all evergreens. "Box, Fir, Privet, Phillyrea, Arbor Vitae, Holly, Cypress, the Red Cedar, Laurel, Irish Ivy, Bay-tree, etc., etc.," with practically all the borders filled with her favourite purple Pansy. It did not appeal to Hogg, who writes: "The only period of the year in which it could be viewed with any degree of satisfaction was the winter." After all there is something rather fascinating in the idea of the great tragedienne surrounding herself with a garden, one in spirit with herself. Wheatley (*Observations on Modern Gardening*, 1770) would have been hard put to it to suggest a more characteristic surrounding. The second point of interest occurs on pages 252-253. Writing about the Dahlia, he states: "It is now generally treated as an annual by sowing the seed in March." I do not know why the practice died out, but I rather fancy that until the last ten or twenty years the gardens in which seedling Dahlias were raised every year were few and far between. This must suffice for the Treatise. I now come to the supplement which Mr. Brotherston does not mention. It is a scarce book—dated 1833. When it was written the author had been obliged to entirely give up "gerund-grinding" after being at the task for thirty years, for reasons of health, and he and his two sons were flower growers and dealers pure and simple. In the preface he paints the years 1831 and 1832 as being very black from a nurseryman's point of view. "The agitation produced by the discussion of the Reform Bill seemed to have diverted men's minds from the ordinary occupations of life; . . . few or no ornamental shrubs, plants or flowers were required to embellish the conservatory, the greenhouse, or garden as before; to add to the evil hardly any nurserymen's bills were paid, and their credit suffered accordingly." He suffered himself. Sixty persons, "noble and ignoble," failed in their engagements with him. China Asters were a new flower—they were introduced to commerce about 1829. The method of keeping pollen in glass tubes, discovered by a Mr. Lemon, a nurseryman and florist near Paris, was urged upon the attention of those who wished to raise new varieties. It "will retain its virtue for some weeks."

Dwarf Dahlias were being raised from seed and the culture of Heart's-ease was beginning to be taken up by nurserymen; Hogg himself had a fine collection. Reference is made to Queen Adelaide's love of florists' flowers, and her collection of Carnations at Windsor, some of which our author supplied. She was very fond of Tulips, and when Duchess of Clarence, he says, Lawrence's bed of Tulips at Hampton was a particular point of attraction.

If at the time of publishing the second edition of his Treatise Hogg did not take, as Mr. Brotherston suggests, as much interest in the Tulip as in the Carnation, it was no longer the case when the Supplement appeared in 1833. In this work there are 208 pages, and of these 112 are devoted to the Tulip, and he grew himself at least one hundred varieties. If he had not Fanny Kemble, he had Lady Crewe (a rose) and Polyphemus (a bizarre) amongst them. Many pages are devoted to "breaking." Not only does it seem to have been a difficult matter to get breeders to "break" in mania days, but even when Hogg was forming his collection about 200 years afterwards, it was no easy matter to insure it. It is well worth while anyone, who is interested in this flower, reading all that is said on the subject. Suggestions, likely and unlikely, are put forward as its cause, but none was satisfactory. We have not found out the secret to-day. In my opinion constant moving from garden to garden is as likely a cause as any; and if growers of Darwin Tulips have to bemoan their flowers breaking, when it is the last thing in the world that they want them to do, it goes a long way to strengthen my surmise, for Tulips to-day move about more frequently, more easily, and less expensively than when they first bewitched the flower-loving gardeners of Western Europe, or even when some of them found a lodging in our florist's garden at Paddington. The name of Clark, of Croydon, looms large, as well it should. When I think of him I think of James Douglas, Parson Horner, and other great florists of our own times. They may have been his equal, but cannot have been his superior. I like his simple honesty when he writes, on his sending some Breeder Tulips to Mr. Hogg in 1822: "I would not have you, or your sons, expect that I have sent you my very best; although I believe them to be such as will make very fine flowers." I am sure they would. Among my most cherished Tulip possessions are some original paintings of some of Clark's broken breeders, taken from life. Considering the time of their appearance, their delicate feathering, and the purity of their ground colouring, are wonderful. Again may I express my thanks to Mr. Brotherston for his calling attention to Thomas Hogg, "gerund-grinder," writer and dealer in florists' flowers. His little books are delightful and instructive reading for all who care to delve into a past age of gardening. *Joseph Jacob.*

HARDY FLOWER BORDER.

ANTHEMIS CUPANIANA.

THERE are many good garden flowers which the majority of gardeners—amateur and professional alike—know little or nothing about. Anthemis cupaniana appears to be one of these. It is not, however, a rare plant. It is frequently offered in trade catalogues, and may occasionally be seen in certain private gardens, especially in those whose owners take a real interest in plants. Yet it is somewhat puzzling to understand the comparative neglect of Anthemis cupaniana. It has been called by one of our keenest and often most caustic critics of flowers "a treasure." With such commendation applied by one who was no mean judge, it is hardly necessary to expatiate upon the claims of this plant. It is practically hardy everywhere. It will grow well in either sun or shade, though I consider that it has a preference for sun. It does not object to light soil or heavy soil, although it succeeds best in light, well-drained land. I have occasionally lost old plants, though but rarely, and it was easy to replace these, either from self-sown seedlings or from cuttings, which root with the greatest of freedom in sandy soil under glass, either in the open air, under a cloche, bell-glass, or other shelter, or in a cool or cold house in pots well surfaced with sand. The old-fashioned method of making the cuttings with a heel answers well, but is not essential.

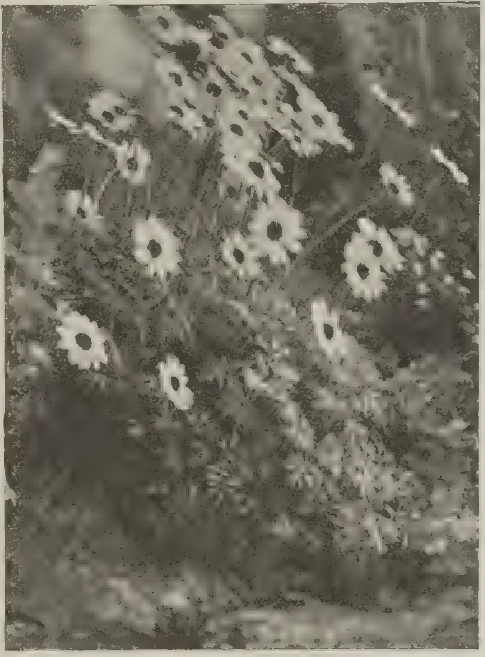


FIG. 3.—ANTHEMIS CUPANIANA.

This Anthemis forms a rather loose, yet neat plant of slightly trailing habit, when of good size, composed of many branches fully furnished with charmingly cut, silvery leaves, and of a pleasing aromatic odour. Then it produces for many months, often from May and June until December, if severe frost keeps away, a host of fair-sized, single, pure white, Chrysanthemum-like flowers, useful if needed for cutting, and making a delightful harmony with the silvery foliage. An old plant may be a yard across if desired, but it can be kept to any smaller size required by clipping it back in spring or after the flowering is over. Seeds are sometimes procurable, but a stock is soon raised from cuttings if a single plant is secured to begin with. Anthemis cupaniana is a native of South Europe. *S. Arnott.*

CAMPANULAS.

CAMPANULAS include some of the most beautiful hardy herbaceous perennials for gardens, and it would be most difficult to convey an adequate idea of their wonderfully varied beauty. Their colours range from snow-white through the most delicate shades of lavender to dark blue and purple. They are of very easy cultivation, growing well either in sunny or partially shaded positions. The taller varieties are admirably suited for the herbaceous or shrubbery borders, and the dwarf forms are charming on the rockery, or for planting on the edge of the herbaceous border, in deeply trenched, moisture-holding soil. During the early summer the various forms of Campanula persicifolia, the Peach-leaved Bellflower, are most beautiful; indeed, no section in this widely-varied group is better suited for general cultivation by those who desire a good display of flowers, more especially the large-flowered form known as Backhousei. This beautiful Campanula has large, handsome snow-white flowers, developed on stout stems 2 feet to 3 feet high from June to September. The variety Moerheimii has most beautiful semi-double pure white flowers, borne on stout spikes. The spikes are fine for use as cut blooms. The variety Coupe d'Azure has also semi-double flowers, and is very beautiful; the blooms are a pretty shade of lavender-blue, and borne on stiff, erect stems. The variety humosa is distinct from the above, with its semi-double lavender-blue flowers; it is a good border plant, flowering from June to August.

All the above make charming plants for pot culture in a cool greenhouse. They need only a little fire heat, and if lifted in fair-sized clumps and potted grow freely, opening their pretty, bell-shaped flowers with freedom.

Another most distinct and valuable Bell flower is C. persicifolia coronata alba, with cup and saucer shaped flowers. The corolla is encircled with a collar-like appendage near the base, which adds materially to the whiteness of the flowers. The variety coronata is also useful as a border plant. It has blue flowers and is free blooming, the spikes appearing from June onwards. This variety grows about 2½ feet tall.

Campanula grandis (syn. latiloba), Perry's variety, is a vast improvement on the type, having tall, stout stems bearing light blue flowers. It is in bloom from May to July, and grows 3½ feet tall.

C. grandis alba, a pretty white form, is fine for massing or grouping.

C. lactiflora (syn. celtidifolia) is one of the most beautiful Bell-flowers. The plant is of robust habit, producing its flowers on numerous stout stems from 3½ feet to 4½ feet tall. With its side branches it forms a pyramid of soft lavender-blue powers from June to August.

C. lactiflora alba magnifica is similar in habit and structure to the last, but has pure white flowers.

C. latifolia alba is splendid for planting in the foreground of the shrubbery border. It bears tall spikes, with pendulous, long, white bells. The variety macrantha has erect stems 3 feet high bearing long, deep purple flowers.

C. pyramidalis, the Chimney Bell-flower, is the most conspicuous of all Campanulas, and grows from 4 feet to 6 feet high. The massive flower stalks are well furnished with beautiful bell-shaped flowers from July until October. The plant is especially adapted for pot culture for conservatory decoration; the numerous handsome pyramidal spikes crowded with large, salver-like, blue or white flowers are exceedingly effective.

Campanula Medium, the Canterbury Bell, is a most valuable biennial species, of which there are numerous forms and varieties. This plant is one of the freest flowering of all the species and is most valuable for the summer decoration of the garden. The seed may be sown thinly in April in the open border or in pans and boxes under glass. As the plant is a biennial, it should be transplanted in a shady border, well watered and allowed to make good growth.

Other Campanulas suitable for planting in close proximity to the shrubbery border are C. glomerata superba, which bears clustered heads of violet-blue flowers; C. alliariaefolia, that bears graceful sprays of creamy-white flowers on stems 2 feet tall; and C. bononiensis, that has tall, slender spikes of pale blue flowers; also its variety alba, which is splendid for grouping in the mixed border, and grows to a height of 2½ feet to 3 feet. *W. Logan.*

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Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

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EARLY BOTANIC PAINTERS.—

No. 1.

DURING a recent visit to the ancient town of Poitiers I was able, by the courtesy of Monsieur E. Ginot, Conservator of the Bibliothèque municipale, to examine an interesting old manuscript by an unknown botanic painter, and to obtain some photographs of it. Entered in the catalogue of MSS. as No. 154, *Recueil de plantes à la gouache, avec légendes français et rubriques*, it has several features of more than passing interest. In the first place, although not distinguished either for fine drawing or colouring, it is nevertheless remarkable as an early example of the Florilegium, i.e., a collection of plant depictions with little or no text—a type of botanic illustration that became more common in the early decades of the seventeenth century. Secondly, this MS. is a striking example of the ancient manner of painting entirely in body-colour, and of accentuating the forms by definite coloured outlines of a darker tint than the parts they enclose—a method so ancient that it was used by the ancient Egyptian painters. The same technique was also employed by the painter of the earliest-known codex of Dioscorides (VI. century), as may be clearly seen in the splendid facsimile of that MS. The Poitiers MS. is therefore intimately allied, as regards its technique, to some of the most ancient plant-paintings known.

The late Dr. E. T. Hamy, who in 1898 wrote a short memoir on this MS. in *Bull Mus. Hist. Nat., Paris*, iv., pp. 158-161, was of opinion that it belonged to the first half of the sixteenth century. The type of botanic illustration found in it, however, shows a great affinity to that of the printed *Herbarius*, 1484, and *Ortus Sanitatis*, 1491; and the illustrations in these printed herbals are presumed, on good grounds, to have been copied from MSS. of earlier dates. Nevertheless, as Dr. Hamy has pointed out, the Poitiers MS. is undoubtedly a copy of an older MS., as the inscriptions contain faults such as would be made by one who failed to decipher fully the text he was copying. Taking everything into consideration, it seems most likely that the MS. was painted about 1500, before rather than after.

The plants painted on both sides of the fifty quarto-size leaves of rather coarse vellum comprising this MS., amounting in all to one hundred and eleven subjects, are, with the exception of two introduced plants, those common to the neighbourhood of Poitiers. Some are frankly diagrammatic, yet have traces of a feeling for natural form, whilst others show a considerable amount of naturalism, which leads one to presume that even if the painter did not work direct from nature, he was well acquainted with many of the plants he depicted. The painting reproduced here (Fig. 4) shows Iris germanica, and is typical of the more natural examples in this MS. The name "Flay" is no doubt a local form of "Flambe," the old French name for the Iris. Some of the effects obtained by this method of working entirely in body-colour are most striking, and it is surprising how well the smaller details in flowers are sometimes indicated.

The introduction of a humble-bee walking along a leaf in one of the paintings is a detail of some interest. This, the only insect depicted, is quite creditably painted; and it marks this MS. as a forerunner of those more elaborate MSS. and engraved books, with their wealth of fine insect depiction, which were the product of the ensuing century. Another point of interest is that one plant-figure is accompanied by an enlarged study of the fruit, a method of illustration much in vogue later on.

The inscriptions in this MS., written in old French characters in the fine, rubricating ink that never seems to fade, comprise the names of the plants, in some cases the medicinal qualities, and in others even the habitats. A few glosses in black ink in a later cursive hand have been added.

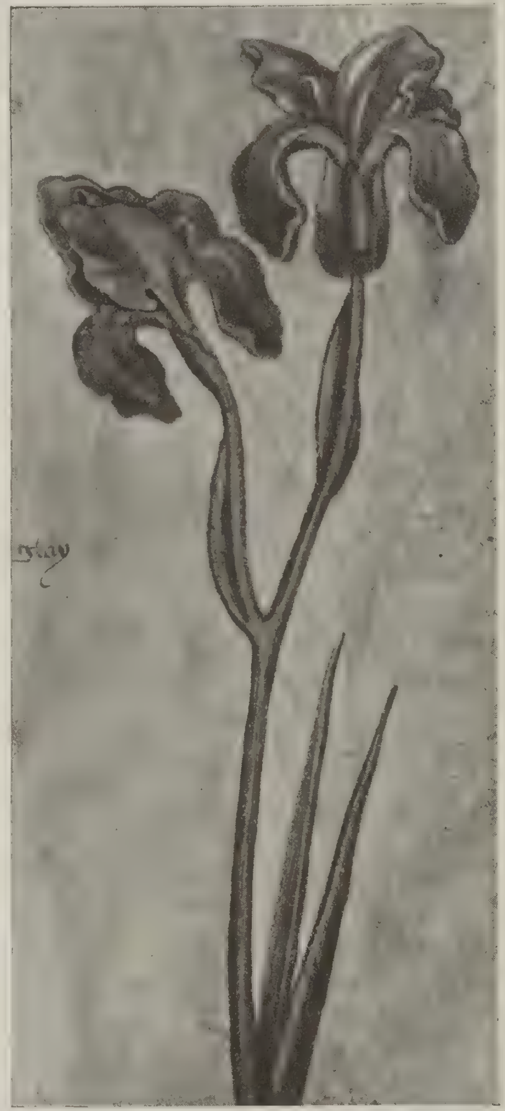


FIG. 4.—IRIS GERMANICA, BY AN EARLY SIXTEENTH-CENTURY ARTIST.

The Bibliothèque Municipale acquired this MS. in 1818 from the heirs of the Benedictine D. Mazet. Its origin may possibly be monastic, though there is no evidence to show this. As yet, its plant designs have not been traced to any early printed herbal. They are perhaps the survival of a local botanic tradition of considerable antiquity, harking back to the early period of the Middle Ages.

More than a century later, another Poitevin figures as a botanic painter. Jean Le Roy, Sieur de la Boissière, was the painter of a Florilegium at present preserved in the Muséum d'Histoire Naturelle, Paris, and was of an ancient Poitevin family, one of his ancestors being mayor of Poitiers in 1293. This MS. of his consists of forty-four leaves of strong vellum, 40 x 30 cm., and has on its second leaf an elaborate frontispiece, which includes a Latin dedication to Thomas Garnier, apothecary of Poitiers, dated 1610. The painter evidently presented this MS. to Garnier as a friendly offering, and it appears that he did so at an advanced age, as his dedication mentions his trembling hand. He also calls his MS. a Florilegium, although its contents are of a somewhat varied character, for three landscapes are included, and several birds! His flowers are sometimes decorated with insects, and here as in several other MSS., a preference is shown for certain species, such as the Emperor Moth and strikingly decorative Butterflies. More than forty kinds of Tulips are included, unhappily without names. A magnificent orange-red Martagon Lily, known as the Lily of Constantinople, many species of Fritillaria, Iris, Crocus, Hyacinth, Narcissus—and, in fact, most of the flowers then in garden cultivation, are well depicted in his pages. One page shows six different double varieties of Carnation, a flower cultivated in France with the greatest zeal in the early years of the seventeenth century.

The technique used by this painter was that of a mixture of water-colour wash and body-colour, a method that had become common in his day. The execution is somewhat unequal, due no doubt to the trembling hand of the aged painter. This MS. has suffered considerably from damp, and must have fallen upon evil days at some time between its possession by Thomas Garnier and its purchase for a moderate sum from a clockmaker in Paris by its present preservers. Further details concerning this MS. will be found in Dr. E. T. Hamy's memoir in the *Nouvelles Archives du Muséum, Paris*, ser. 4, iii., pp. 1-20.

By a comparison between these two MSS., we are enabled to gauge in some measure the progress in plant painting that had been made in about one century. In the Poitiers MS. we find traditional plant figures allied to a traditional technique of great antiquity, and in Le Roy's MS. a close adherence to natural forms and colours, combined with a more enlightened technique. Further, whilst on the one hand the plants have been chosen for their medicinal qualities, on the other hand we find an abundance of garden plants, many of which were unknown to the earlier painter, and eloquent of the great progress made in horticulture. *S. Savage.*

CANNON HILL PARK, BIRMINGHAM.

THE citizens of Birmingham are fortunate in possessing a large number of fine parks within easy reach of the centre of the city. The writer has had the pleasure of visiting Cannon Hill Park on several occasions during the past season. This beautiful park is within two miles of New Street Railway Station, and from thence can be reached by tram in twenty minutes.

From an arboreal point of view, there are few public parks in the United Kingdom so well favoured. Large Elms, Oaks, Beeches, Chestnuts, and Hawthorns abound, giving a fine rural effect to a well-laid-out park. Special mention may be made of the Hawthorns and Pyruses, which are numerous and in great variety in this park. Isolated specimens on many of the lawns are magnificent, both in size and in the rich colour of flowers and fruits. Several very fine specimens of the Willow-leaved Pear, Pyrus salicifolia pendula, growing on the lawns near the main entrance, give a splendid effect in spring, with their wealth of bloom and silvery foliage.

The arboretum proper is of recent formation, and provides a very interesting feature. It contains Conifers in great variety, interspersed with deciduous and evergreen flowering shrubs, which provide a rich display from early spring to late autumn.

Contiguous with the arboretum is the students' garden, where large numbers of plots are filled with British plants, arranged according to their natural orders, for the benefit of the botanist and the student.

Spring and summer bedding is practised on an extensive scale, and very fine effects were produced last season by the free use of standard Heliotropes, Paul Crampel Pelargoniums, Abutilon Thompsonii, Fuchsias, and Centaurea Cineraria (syn. candidissima) over a groundwork of dwarf Paul Crampel Pelargoniums and yellow Violas, the whole relieved with the feathery green foliage of Artemisia sacrorum viridis and Acacia dealbata. Two of the most beautiful beds I saw during the past season were in this park planted with large standards of Pelargonium Clorinda over Fuchsia Dr. Wileman and Gladiolus Niagara, with a groundwork of Verona Pelargonium interspersed with variegated Grasses, the whole producing a charming colour effect in pink.

Carpet bedding is still practised in the Birmingham Parks, and, judging by the crowds of visitors who flock round the large "carpet" at Cannon Hill, it would appear that this style of bedding is almost a necessity in a well-ordered public park. Many old favourites were noted, such as Iresines in variety, Alternantheras, Arenarias, Fuchsia Nora Parker, Coleus Verschaffeltii, Violas, Sedums, and Echeverias. The design was simple, and consequently all the more effective, as large panels of each subject were planted, producing a very vivid effect in a setting of excellent green turf.

In the autumn bold displays of Antirrhinums, Pentstemons, Chrysanthemums, Gladioli, and Montbretias in great variety were noted, and special mention may be made of a magnificent bed of Kniphofia (Tritoma) Uvaria, each plant carrying from twenty to thirty spikes of flower, from 5 to 6 feet high.

The Rose garden contains a good collection of free-flowering varieties, and, judging by the colour of the blooms, the healthy foliage, and strong growth, the soil at Cannon Hill appears to be ideal for them. The varieties Hugh Dickson, Geo. Dickson, Mme. E. Herriot, Mme. Ravary, Lady Pirrie, Caroline Testout, General McArthur, Lady Hillingdon, Richmond, Pharisäer, and Lady Ashtown all flowered splendidly last summer.

The glass department at Cannon Hill is extensive. Orchids are a special feature. Cypripediums, embracing all the best varieties, are extensively grown, also Cymbidiums, Cattleyas, and Dendrobiums. It is gratifying to note that, in addition to batches of many well-known present-day flowering and foliage plants, old favourites are also included. Fine batches of Thrysacanthus rutilans, Tydaea amabilis, Manettia bicolor, Aphelandras, Scutellarias, Eranthemum pulchellum, Rondeletia, and Callicarpa purpurea were to be seen, also a goodly collection of scented-leaved Pelargoniums, which add interest to a very comprehensive collection of indoor plants.

The large Palm house contains a fine collection of Palms and economic plants, such as the Banana, Coffee, Cotton, Monstera, and Ficus in variety.

These notes would be incomplete without some reference to the provision made for recreation in this park. Ample facilities are provided for boating, tennis, cricket, bowls, golf, and fishing, and it is a matter for congratulation to the citizens of Birmingham that they have the privilege of enjoying all kinds of sports amidst scenes of sylvan beauty seldom met with in close proximity to an industrial town. *Hortus.*

TREES AND SHRUBS.

VERONICA SALICIFOLIA.

ALTHOUGH among the hardiest of the shrubby Speedwells a bush of Veronica salicifolia dies outright occasionally, as has been the case with the specimen depicted in Fig. 5, since it was photographed. The reasons for such failure are various, but in this case I think old age was the cause, coupled with a poorly drained site in a rather exposed position. Authorities differ about the flowering period of this species—both autumn and summer being mentioned. Here it bloomed in summer, despite the cold and somewhat sunless site. Indigenous to New Zealand, V. salicifolia is a shrub appropriate for growing against a wall, as well as for planting in bush form in the open—the former position being advisable in cold localities. Veronica salicifolia is a quick-growing species, bearing pale blue to whitish flowers on pendulous racemes, the latter feature being both distinctive and pretty. *C. Turner, Ampthill Park Gardens.*

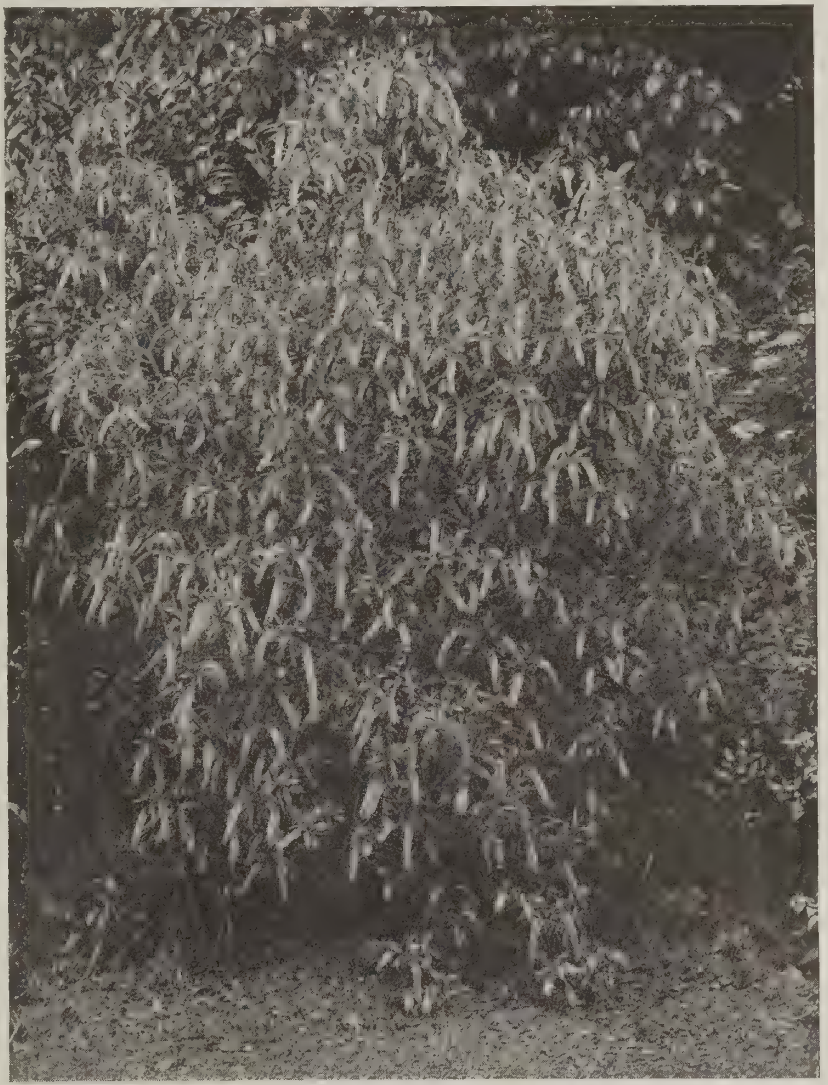


FIG. 5.—VERONICA SALICIFOLIA.

TEUCRIUM FRUTICANS.

THOUGH well known as an indoor plant, this shrub is a good deal hardier than is generally supposed, and one that might be planted outside in many districts other than those which are notable for the mildness of their climate. Even in localities where the winters are rather severe it will make an attractive wall plant. Here it has withstood 20 degrees of frost with no more protection than a little dry Bracken about the roots, and even should the branches be killed the plant will send out strong new growths from the base in spring.

T. fruticans undoubtedly possesses attractions which merit such care being taken of it. The white stems and silvery leaves are not only very beautiful in themselves, but they make an admirable background for the large and elegantly poised pale-blue flowers. A conspicuous feature of these latter is the very long stamens which protrude, Honeysuckle-fashion, from them, and another noteworthy point is the extensive season of flowering. T. fruticans, in a warm, sunny place, will produce a succession of bloom from mid-summer to the autumn frosts. It appears to do well in any free soil and is an indispensable plant for the rock-garden, where grey or lavender effects are desired. Propagation is easily effected by means of cuttings, and young plants so raised may be expected to flower in two years. *A. T. J.*

PERNETTYA.

PERNETTYA MUCRONATA is the most commonly cultivated species of the genus. It is a dwarf berried evergreen of neat habit, with hard, glistening foliage. There are numbers of varieties of this species with a wide range of colour in the berry, including carnea nana, coccinea lilacina, nigra major, rosea purpurea, and sanguinea, the names indicating the colour variation. Other good varieties are P. m. speciosa, the large-fruited P. m. macrocarpa, and the profusely berried P. m. floribunda.

Pernettyas thrive best in light, well drained soil; they dislike anything approaching stagnation at the root. I have seen them particularly well berried on the gravelly soil overlying the Bunter Sandstone in North Staffordshire.

Pernettyas are suitable subjects for covering gently sloping banks; they are naturally of slow growth, and do not quickly outgrow their position. They may also be massed at the front of the shrubbery border, or planted in small beds on lawns. Quite small plants berry freely, and are useful for furnishing window-boxes in winter. *Fred. W. Jeffery, Dalserf, N.B.*

THE SEA BUCKTHORN.

THE great natural thickets of this shrub on the seacoast of Lincoln, at Skegness, have been in grand form this winter, up to the end of December at least. Birds are said not to eat the berries, but they did so last year some time before Christmas. The reason given by Mr. Alex. Wright, the keeper of one of the golf courses, was that birds will eat the berries after they have been mellowed by frost. The redstart and missel-thrush are the principal feeders upon them, but he suspects some others. No great frost having occurred, the berries are in perfection. Much can be learnt of the habit of the plant when in berry. There are two distinct shades of colour, namely orange-red and orange-yellow, and some colonies show a tendency to white, especially on the southern exposure of the bushes. Philip Miller spoke of seeing the red variety only on the sandbanks of Holland, but only the yellow one in Lincolnshire. This may be the dominant one yet, but there are many red-berried colonies. The male plants also grow in colonies and are wonderfully evenly distributed. They are recognisable by the entire lack of berries and the larger flower-buds at this season. Each colony is obviously the result of a single seedling, for increase takes place more often by suckers than by berries. The rank Marram and Lyme Grasses may prevent the seedlings from getting a footing, for they are not very robust. As the new villas extend southwards along the coast, the Buckthorn is often allowed to remain in the garden. *J. F.*

FOREIGN CORRESPONDENCE.

EARLIEST HYBRIDS OF GLADIOLUS PRIMULINUS.

In your issue of December 9, 1922, p. 346, appears a note in which Messrs. Kelway and Son state that they were the first to put into commerce hybrids of Gladiolus primulinus. The concluding lines of the note in question are "they were offered to the public in 1913. Certainly no hybrids of primulinus were ever listed in any other catalogue so early as this."

We are sending you under separate cover a copy of our catalogue for the spring of 1908, in which we offered, together with Gladiolus primulinus (species), the first hybrid of this species, which we raised and named G. primulinus major. In the succeeding years, 1909 and 1910, we offered other hybrids—G. primulinus salmoneus and G. primulinus maculatus. Others followed in due course. We thought it desirable to re-establish the actual facts of the case, which are founded on documentary evidence. *V. Lemoine and Fils, Nancy, France.*

[We have received a copy of Messrs. Lemoine and Sons' catalogue for the spring 1908, in which, as stated in their letter, Gladiolus primulinus major is catalogued as the result obtained by crossing G. primulinus with fine yellow varieties of the G. Lemoinei section.—Eds.]

DISTINGUISHING THE SEX OF GINKGO BILOBA.

In the *Gardeners' Chronicle* of October 7th, 1922, p. 209, regarding Ginkgo biloba, I read: "At one time it was said to be possible to distinguish the sex of the tree by its growth, the male being upright in growth and the branches of the female more or less spreading. During Mr. E. H. Wilson's extensive tours in China and Japan he made many inquiries on this point, the result being that he found it impossible to determine the sex by its mode of growth, in which Chinese and Japanese arboriculturists agreed."

Notwithstanding all this, there is an easy method of distinguishing the sex of trees of Ginkgo biloba, in the absence of fructification. This was first observed by Mr. J. Daveau, who is now the Keeper of the Herbarium in the University of Montpellier. He discovered that on the male trees the leaves appear and fall fifteen to twenty days before they do on a female tree. I have observed the same thing even in small plants obtained from seeds. Here in the Botanic Gardens of Coimbra the male Ginkgo lost its leaves about a fortnight ago, while on the female tree the leaves are only now beginning to change their colour (November 24th), and none have yet fallen. *Dr. J. A. Henriques, Botanical Institute, Coimbra University, Portugal.*

ORCHIDS IN 1922.

During 1922, interest in Orchids was well sustained, and there are signs that the depression caused by the war is passing and that a brighter future is before orchidists, both amateur and professional.

The exhibits of Orchids at the Royal Horticultural Society's meetings and those of the Manchester and North of England Orchid Society have been finer than in recent years, the R.H.S. granting twenty-four First-Class Certificates and seventy Awards of Merit, and the Manchester Society a more than usual number of awards to exceptionally good novelties. The R.H.S. continues to add to its pictures of certificated plants; the number added last year brings the total to 2,800. The new hybrids of last year, lists of which were given from time to time in *The Gardeners' Chronicle,* give further evidence of the hybridists' activity, the number recorded during the past year being 525, as compared with 320 in 1921.

Amateurs have loyally sustained their interest in Orchids by the many magnificent groups shown, some of which have been more extensive and remarkable than any previously staged.

Sir Geo. L. Holford, K.C.V.O., Westonbirt. Tetbury (gr. Mr. H. G. Alexander), with his memorable group of Cymbidiums staged at the R.H.S. Hall on February 28, caused astonishment and admiration for the great variety and beauty of this noble class of Orchids raised at Westonbirt. On other occasions Westonbirt has been to the fore, and during the year First-Class Certificates were obtained for the rich scarlet Sophro-Laelio-Cattleya Falcon Westonbirt var., Cymbidium Miranda Bronze Beauty, and C. Thrush, C. Alexanderi Westonbirt var., whilst Awards of Merit have been gained for several new Cymbidiums, Laelio-Cattleya Sargon Westonbirt var., L.-C. Golden Light, and, among others, Cypripedium Golden Light.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), at Holland Park Hall Show and on other occasions, exhibited groups replete with distinctive Odontoglossums of the Gatton strain and fine Cattleyas and Laelio-Cattleyas, several of the sections including examples of the blue-tinted class developed at Gatton Park, and a great variety of rare species of Orchids, many of a frail nature, but which have been retained in vigour for many years.

Baron Bruno Schröder, The Dell Park, Englefield Green (gr. Mr. J. E. Shill), showed marvellous groups of Laelio-Cattleyas raised at The Dell, whilst his groups of white Calanthe Harrisii and other Orchids were superb.

At the last meeting of the R.H.S., G. F. Moore, Esq., Chardwar, Bourton-on-the-Water (gr. Mr. Page), staged a group of his giant strain of Cypripediums.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), has been the most regular exhibitor of groups of good hybrids and rare species. Two good hybrids of his, for which awards were secured, were Brasso-Cattleya William Pitt and Laelio-Cattleya Misiones var. Venada.

Pantia Ralli, Esq., Ashstead Park (Orchid grower, Mr. Farnes), showed groups on several occasions that were remarkable for the fine Odontoglossums included. Awards were given to Odontoglossum crispum Beauty Spot, O. c. Silver Moon, varieties of Odm. eximium and others.

J. J. Bolton, Esq., Claygate Lodge, Claygate (gr. Mr. S. Lines), a keen collector of good Orchids and especially Odontoglossums, was awarded First-Class Certificates for O. Faustina Claygate Lodge var. at Chelsea, and later for O eximillus Tintoretto

R. Gerrish, Esq., Milford Manor, Salisbury (gr. Mr. Sorrell), also a lover of Odontoglossums, secured awards for the richly coloured O. Tagus and O. Topaz on the same day, and on October 3 he obtained a similar award for O. Princess Yolande, Gerrish's variety.

The Rev. J. Crombleholme, Sir H. S. Leon, Bart., the Duke of Marlborough, C. J. Lucas, Esq., and others have secured several awards and the numerous occasional exhibitors show how general the cultivation of Orchids now is

Nurserymen.

Messrs. Charlesworth and Co., Haywards Heath, who always endeavour to get showy novelties of new sections, have exhibited many superb novelties, some of which, with their one first flower, have secured First-Class Certificates; it is to be expected that, when these fine novelties have developed to the full, they will disclose still finer features. The awards won by this firm have been numerous, and reference to the best of those which secured First-Class Certificates at the R.H.S. will indicate the quality of the whole. They include Miltonia Lord Lambourne, one of the most remarkable home-raised hybrids; Odontoglossum Purple Emperor, wholly deep Tyrian purple, which was a centre of attraction at the Chelsea Show; Odontonia Merope var. vivicans, a grand member of one of the special evolutions of Messrs. Charlesworths; Vuylstekeara Aspasia, of the same class; Laelio-Cattleya Pyramus, an ideal flower of fine colour; the fine yellow Brasso-Laelio-Cattleya Golden Crown var Prince Humbert, and the type of their new class of hybrid, Potinara Juliettae.

Messrs. Armstrong and Brown, Orchidhurst, Tunbridge Wells, obtained First-Class Certificates for several fine Odontiodas, all shown with fully developed spikes of richly coloured flowers. The best were O. Cordor, shown on January 31; the equally distinct O. Antinous, which secured an Award of Merit on the same day; and O. Opal, for which a F.C.C. was awarded on March 14. Among their fine novelties in Odontoglossums, the lead was taken by their marvellous O. Armstrongii var. Aureole, the second to flower with pure white ground and rich chrome yellow markings. Among others which secured awards were Sophro-Laelio-Cattleya Mars and Odontiodas Venus and Renown.

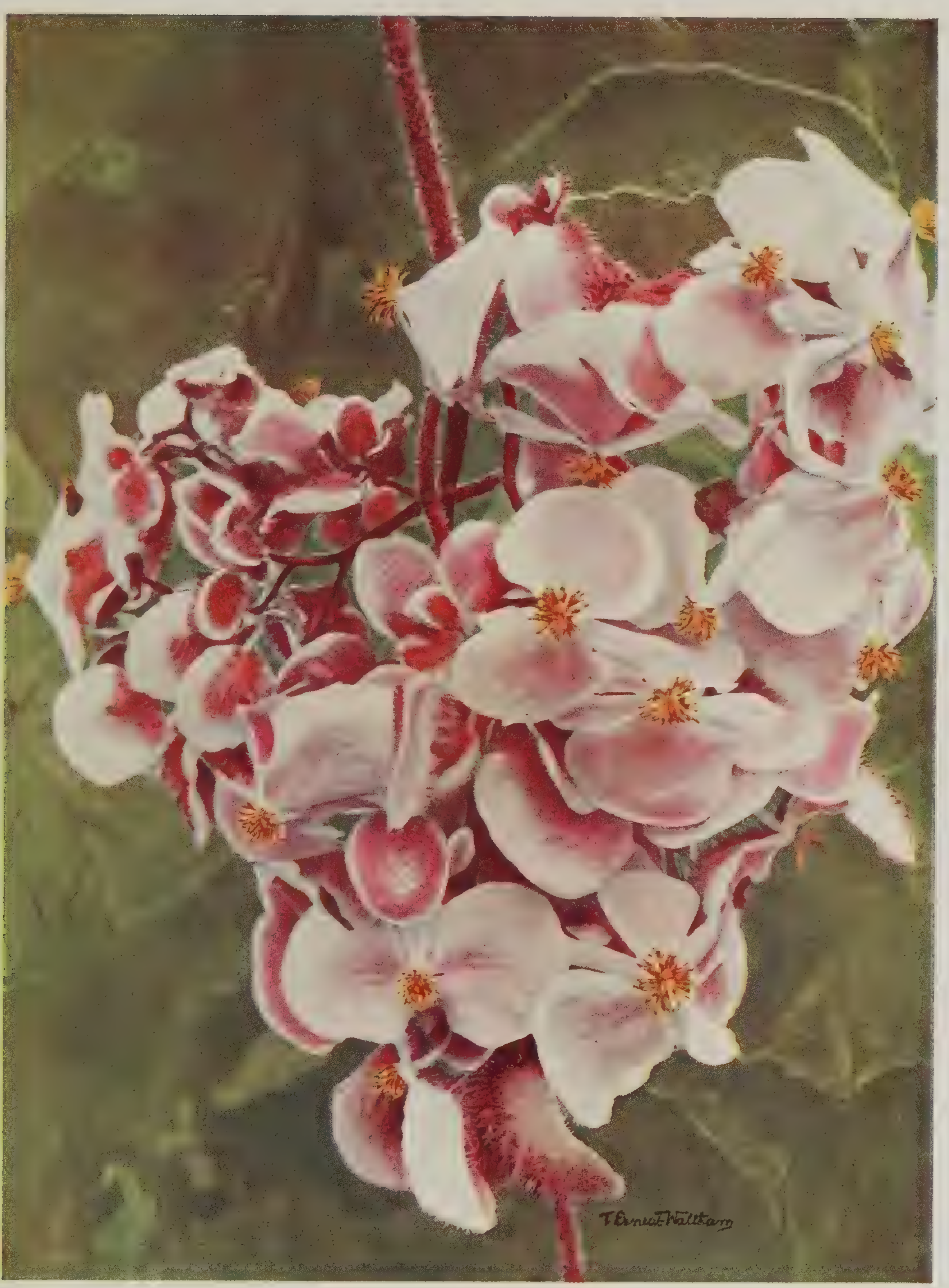
Messrs. J. and A. McBean, Cooksbridge, specialists in Odontoglossum, Odontioda and Cymbidium, secured First-Class Certificates for O. Amethyst var. Garnet, and at the last R.H.S. meeting of the year they had a grand form of O. Vega, and also won a Cultural Commendation for O. Orosius with three strong spikes of thirty-six flowers, probably the finest specimen of a richly coloured form yet shown. Odm. St. George var. Solum, Oda. Radiant, and Cymbidium Alexanderi Imperial Prince were among the best of their other plants which won awards.

Messrs. Sanders, St. Albans, received First-Class Certificates for the very beautiful Vanda luzonica Dulcis on October 31, the noble Cattleya Tityus var. Wedding Bells, and their remarkable bi-generic cross Angulo-caste Sanderae; and Awards of Merit for Odontoglossum Magnificent, a fine example of their frequent use of Odm. Magali Sander, with its distinct features as a parent; Cymbidium Nelly var. Golden Glow, distinct in colour; Dendrobium Perfection, a good advance in their fine crosses with D. nobile nobilius; and Miltonia spectabilis extraria, a find out of an importation, a field in which Messrs. Sanders were pre-eminent, and which is being again worked as circumstances permit.

Messrs. Stuart Low and Co., Jarvisbrook, and Bush Hill Park, Enfield, have been among the best and most constant exhibitors of groups, in which Brasso-Cattleyas, Cattleyas, Laelio-Cattleyas were always fine features. At the R.H.S. Chelsea Show Brasso-Laelio-Cattleyas were well shown by this firm, their large and finely coloured B.-L.-C. Jupiter His Majesty obtaining a First-Class Certificate and B.-L.-C. Jupiter Jarvisbrook var. an Award of Merit, a similar award being also given to Brasso-Cattleya Ruby var. Rosetti; B.-L.-C. Truffautiana Low's var.: the bright yellow and crimson Laelio-Cattleya Mrs. Medo; L.-C. St. George var. Victory; and the elegant and richly coloured Oncidioda Stuart Low.

Messrs. Cowan and Co., Southgate, successors of the firm of Messrs. Hassall and Co., which Mr. John C. Cowan had brought to a very high position for excellence, secured a First-Class Certificate for their new Laelio-Cattleya

Supplement to the "Gardeners' Chronicle"



BEGONIA HAAGEANA.

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Dodona, one of the finest and most richly coloured hybrids, far superior to the ordinary run of Laelio-Cattleyas; and an Award of Merit for Cypripedium Moonlight var. Linda a good example of their fine type of Cypripedium which was shown in their groups on many occasions.

Messrs. FLORY AND BLACK, Slough, who specialise in Sophronitis crosses, Brassavola hybrids, Cattleyas, Laelio-Cattleyas, and beautiful hybrid Disas, secured a First-Class Certificate for the showy Sophro-Laelio-Cattleya King George on March 28, and later an Award of Merit for Sophro-Cattleya Prince Shimadzu, a very brilliant and well-formed flower; Disa Julia A. Stuckey, the first rival of the rich scarlet D. uniflora (grandiflora), Brasso-Cattleya Viscount Toda, and B.-C. Dr G. G. Macdonald.

Messrs. J. CYPHER AND SONS, Cheltenham, have exhibited groups largely both at Vincent Square and Manchester. Their exhibits are always fine examples of cultural skill and tasteful arrangement of floral decoration, in which the best effect is obtained by using a limited number of plants, all of good quality and effectively displayed with Ferns and other foliage plants.

Among the Orchids illustrated in *The Gardeners' Chronicle* in 1922 are Angraecum Kotschyi, October 21, p. 298; Bonatea ugandae, November 4, p. 264; Cypripedium Gwen Dixon, November 25, p. 309; Cypripedium Idina, Beckton's var., March 18, p. 127; Cypripedium Lawrenceanum Hyeanum, February 18, p. 75; Cymbidium Alexanderi Westonbirt var., March 25, p. 135; C. Curlew var. Rosy Gem, March 11, p. 115; C. Kittiwake, April 22, p. 193; C. Miranda and C. Redstart, April 22, p. 193; Cirrhopetalum ornatissimum, October 28, p. 248; Dendrobium Ashworthiae, May 13, p. 240; D. atroviolaceum, May 13, p. 241; D. cruentum, August 19, p. 107; D. Phalaenopsis, June 10, p. 301; D. superbum Huttonii, July 1, p. 9; D. Schutzei, October 7, p. 205; D. Williamsianum, June 10, p. 301; and D. Leeanum, June 10, p. 301; Disa Julia A. Stuckey, August 5, p. 81; Lissochilus Horsfallii, October 21, p. 238; Listrostachys Brownii, November 18, p. 294; Miltonia Lord Lambourne, February 25, p. 9; Eulophia guineensis, November 4, p. 265; Odontioda James O'Brien, October 28, p. 249; Odontonia Merope var. vivicans, June 17, p. 323; Odontoglossum Armstrongii Aureole, December 9, p. 337; O. Faustina Claygate Lodge var., June 3, p. 287; O Purple Emperor, May 27, p. 272; Polystachya species, November 18, p. 299; and Potinara Juliettae, March 11, p. 113. *J. O'B.*

RASPBERRY STEM BUD MOTH.

IN 1922 the attack of Raspberry Stem Bud Moth—Lampronia rubiella (Bjerk)—was prevalent throughout the North of England, at least in the writer's district, and a certain amount of damage was general in Raspberry plantations. The life history of this pest is briefly thus :—The moths appear in June and July and egg-laying commences after pairing has taken place The eggs are laid usually in or near the flowers, from which the larvae appear in from seven to fourteen days. The larvae feed either on the receptacle of the fruits, or more rarely on the foliage. Generally the larvae leave the fruit before it is ripe, so that little damage is done up to that stage. The insects hibernate in dead leaves, or in the old stumps of the cut-back canes.

The damage from this pest takes place in the spring. As the buds of the new canes begin to break the tiny larva leaves its winter shelter and crawls up the Raspberry cane; a choice is made of a fairly forward bud, and it then eats its way in, feeding on the pith of the bud. The bud very soon wilts and dies. Pupation takes place either in the bud, or in the pith of the stem. When fully grown the larvae are about a quarter of an inch long, red, with a black head. The moth is shy and not easily seen, with a wing expanse up to about five-twelfths of an inch. The main stems of standard Apple and Plum trees appear to be a favourite resting-place for the moth, if such trees are near a Raspberry plantation.

Unfortunately this pest is on the increase, and it would be advisable for all Raspberry growers to be on their guard against it this spring. If the canes are examined carefully when the forward buds are about one inch in length, buds slightly shrivelled will be found, or, if the leaves are forward enough, wilting will be observed.

Infested buds should be removed at once and burnt; if this is done it will help considerably in keeping the pest in check. The canes should be examined several times. Neglect at this early stage will enable some of the larvae to get into the pith of the canes, and it then means cutting the cane away to a bud below the one affected, resulting in the greater part of the crop being lost.

Two factors seem to favour L. rubiella, and often enable the insect to remain undetected. The first is that when the buds are attacked in spring, the damage is often attributed to cold winds or late frosts, as the pest generally attacks the most forward buds. Secondly, after the larvae have got into the buds and caused them to shrivel up, a very weak growth starts from the base of the infested bud; this growth never bears fruit, but serves to mask the damage done.

These two factors often enable the pest to increase for some years undetected, and the grower loses his crop eventually.

The writer has found the larvae of Raspberry Moth appearing quite happy on the Loganberry in many plantations, therefore this crop should be examined as advised for Raspberries.

The destruction of the larvae in spring seems to be the best way of keeping this pest in check, as at any other period in its life history destruction is by no means easy. The method of hand-picking the affected buds is perhaps only practical in small plantations, but is most effective when carried out early enough to prevent the larvae from entering the pith of the canes. It then only means the loss of the buds affected, instead of having to cut the canes back. *Shephat.*

WITCHES' BROOM ON SILVER FIR.

IN Ireland, and some of the western parts of Great Britain, where the Silver Fir (Abies pectinata) is more plentiful than in the east, the disease known as Witches' Broom is very prevalent, and may be found on the stems and branches of trees of all ages. When the swellings which it produces occur on the stems of the trees they weaken them considerably, and they are therefore very liable to break down under wind pressure at the points where these are situated, while the timber is much depreciated in value. A very characteristic illustration of one of these globose or barrel-shaped swellings is shown in Fig. 6, which was made from a photograph of an affected tree in Ireland.

The disease is due to a parasitic heteroecious fungus—one which passes its stages of development on different hosts—Melampsorella caryophyllacearum, Schrött (Peridermium elatinum, Wallr.; Aecidium elatinum, Alb. et Schw.), of which it is the aecidiosporous stage, the alternating hosts being varius genera of Caryophyllaceous weeds, such as Stellaria, Arenaria, Cerastium, etc., on the stems and leaves of which the uredospores and teleutospores are produced. When a stem or branch of a Silver Fir becomes infected a small swelling at first appears, and this goes on increasing in size as the stem or branch grows. From such swellings are frequently produced erect shoots, and it is to the presence of these shoots that the "broom" appearance is due. The leaves produced from these shoots are short, very pale in colour, and they differ from the normal foliage of the tree in being of annual duration only, defoliation taking place in autumn. On the under side of these leaves the aecidiospores are produced, and not on the swollen portion of the branch, as in certain other fungi. The bark is ruptured and thrown off at the cankered swellings.

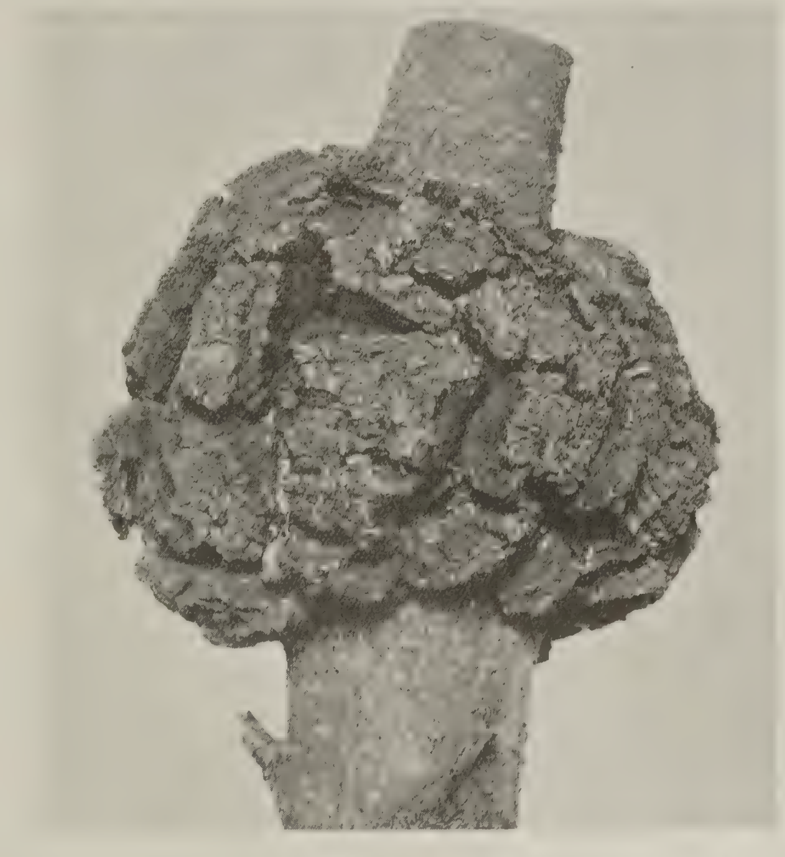

FIG. 6.—SWELLING CAUSED BY THE WITCHES' BROOM FUNGUS ON SILVER FIR.

The disease is well known in Silver Fir forests on the Continent, and it has also been found on Abies Nordmanniana, A. cephalonica, A. Pinsapo, A. balsamea and A. sibirica. *A. D. Richardson, Edinburgh.*

GREY-LEAVED SHRUBS FOR THE SEASIDE.

It is an interesting fact that shrubs with grey or silvery leaves are best suited for planting by the seaside. This may be taken in a literal sense, as, although a few shrubs with green leaves succeed under similar conditions, yet the great majority of such as are able to withstand the first brunt of the sea breeze are of the opposite description. As examples, mention may be made of the Sea Buckthorn, Siberian Salt Tree, Sea Purslane, Shepherdia argentea, Atriplex Halimus, Lavender and Rosemary, all of which have grey or silvery leaves as if coated with a saline deposit. Even amongst trees that thrive under similar conditions, the white and grey Poplar, white or Huntingdon Willow, Beam Tree and Paper Birch are familiar examples. Of smaller growing plants with distinctly silvery foliage may be included the Sea Holly, Horned Poppy, Frosted Orach, Sea Heath and Sea Spurge, also quite a host of smaller growing and creeping species. The silvery glaucous hue of the Lyme grass, Marram or Sea Matweed, and both species of Spartina, all of which have been extensively made use of in the reclaiming of sandy wastes and mud flats by the seaside, are examples of grey-leaved members of the grass family.

All around the coast the Sea Buckthorn is the favourite shrub, where it succeeds admirably, down even to high water mark, and where its foliage is lashed by the salt spray. Strong winds and full exposure to the saline blasts have no effect on this valuable shrub; indeed, the beautiful silvery tint of the narrow, Willow-like leaves is never shown off to better advantage than when stirred by the breeze. From a purely ornamental point of view it is also highly appreciated, for not only is the foliage distinct and pleasing, but towards autumn it becomes heavily laden with bright orange-coloured berries, which often wreath the branch tips for fully a foot in length. Though generally considered as a seaside shrub, the Sea Buckthorn is by no means exclusively so, as it thrives well and attains to large dimensions in many inland situations.

The Beef Suet Tree or Rabbit Berry (Shepherdia argentea) is a capital shrub for the seaside, and is rendered of particular interest on account of the intense silvery hue of the foliage, which is dotted over with rusty brown scales, especially on the under side. The flowers, which appear in early spring, are small and yellow, and unisexual, while the scarlet berries, about the size of Red Currants, are ripe in September.

In the Groundsel Tree or Sea Purslane (Baccharis halimifolia) is to be found another invaluable shrub for seaside planting, succeeding even at high water mark and where constantly exposed to the salt spray. The obovate leaves are thickly covered with a whitish powder, which imparts to the whole plant a peculiar and pleasing glaucous hue. The Groundsel-like flowers are white with a tint of purple. Along the South Coast in particular, the Siberian Salt Tree (Halimodendron argenteum) is to be found in greatest perfection. It is a somewhat straggling shrub, with silvery foliage and purplish pink flowers, which are sweetly scented. It grows naturally in salt fields and saline steppes in Siberia.

Atriplex Halimus is another of the silvery-leaved shrubs that thrive well by the seaside. A native of the Mediterranean Coast, this dwarf shrub, with leaves thickly clothed with a scaly tomentum and a plentiful supply of dirty yellowish-green flowers, though of little value from an ornamental point of view, is yet useful for planting in the seaside garden. It is known as the Tree Purslane.

Both the Rosemary and Lavender are familiar shrubs by the seaside, where they form excellent dwarf screen fences and garden subdivisions. Both have dusty green leaves, and bear an abundance of their much-valued flowers. At Walmer Castle, Kent, by the sea coast, there is a greatly admired hedge of the Rosemary, 70 yards long and 4 feet high, by a yard wide. Olearia Haastii, with its greyish-green leaves and Daisy-like flowers, which are produced in large flat clusters at the branch tips, is well suited for planting in maritime situations, but is not at home on cold, exposed inland places. The peculiar, silvery-green tint of the leaves of O. macrodonta, almost white beneath, render it an attractive shrub for the seaside, where it has been found to thrive well where the situation is not too exposed.

Other shrubs with light green leaves that are found suitable for shore planting are the Wayfaring Tree and Box Thorn or Tea Tree, both of which will grow in sandy soil and full exposure to the sea breezes. Aucuba japonica must not be omitted from my list, for as a seaside shrub it has few equals, and from Wigtonshire southwards it is freely planted for ornament and shelter along the coast.

Both the Lyme Grass and the Maram or Sea Matweed have leaves of an intense bluish-green or silvery colour, and wherever the plants occur in quantity have a striking and highly ornamental appearance. *A. D. Webster.*

SOME EFFECTS OF THE WAR ON GARDENING.

One of the most extraordinary things connected with the post-war conditions of horticulture was the remarkable way in which flowers seemed to "come back" soon after the Armistice. During the strenuous days of rationing, when women were largely employed to manage gardens in place of men, and there was little or no fuel to heat glass-houses, flowers did not seem to matter, and the value of a choice exotic plant was small compared to that of a bushel of Potatos. It seemed unpatriotic to be growing flowers in those days of war, and this idea was carried to the ridiculous in some gardens, where lawns in the front of the house were broken up and planted with Potatos, while the kitchen garden at the rear was allowed to produce weeds in abundance.

No sooner was the fighting over, however, than the flowers seemed to come back in a way which suggested they had only been in hiding until the struggle was over. As an illustration, take the first Chelsea Show after the war. If a regular visitor to this show before the war could have fallen asleep when hostilities broke out in 1914 and awakened on the day of the first Chelsea Show after the Armistice, it would have been impossible for him to believe the extent to which floriculture had fallen into neglect during the years that had intervened.

I remember on one occasion during the war visiting a nursery famous for its specimen plants, stove plants, and Orchids, which have won prizes at scores of the leading shows. They seemed to have vanished; half the houses were empty for the want of fuel to heat them, and the rest were planted with Tomatos which were looked after by a few old men and young girls. But the same firm is winning prizes again with groups of wonderfully well-grown plants, just as if nothing at all had happened. It is an exhilarating story, and bears tribute to the tenacity of British horticulturists and British love for plants and flowers, which only slumbered while the terrible game of destruction was being played.

One does discover instances, however, in which the circumstances of the war have been too much for the horticulturist. From time to time the train carries me past nurseries where, in pre-war days, shrubs, Roses, and herbaceous plants in bewildering variety grew in well-ordered profusion. But these things did not matter when German submarines were sinking our food ships. There was no labour available and no demand for this class of nursery stock. Twitch and other obnoxious weeds got the upper hand, and have kept it, for the cost of cleaning and renovation is prohibitive, and, to quote Goldsmith, these nurseries are now places "where once a garden smiled and still where many a garden flower grows wild." We have heard a good deal about the fortunes that were made during the war, but a strong case could also be made out for the money that was lost by those whose business it is to cater for the decorative rather than the utilitarian side of gardening.

Another sad part of the story of post-war gardening is the state to which the gardens attached to many princely mansions, the names of which are household words in the horticultural world, are reduced. One remembers these establishments as places to which young men used to flock in pre-war days in order to get their training, and where the bothy or living quarters of the journeymen was occupied by a band of high-spirited young fellows. The bothies were emptied to provide soldiers for the Army; too many of them have never been occupied since. When labour was wanted for more serious things, pleasure grounds were neglected, weeds took possession of walks and drives, and lawns grew meadow grass. It is sad to think that many of these gardens have not reached their pre-war standard, and it is hardly likely that they ever will, seeing how heavily the burden of taxation falls on their owners. And the gardeners, too, in many cases, instead of catering for the needs and pleasures of their employers, are engaged in competing with the bona-fide market gardener by selling most of the produce now grown. More than once since the war I have walked through an establishment with the gardener, who used to take a pride in its upkeep, and have listened to his apologies about this or that not being up to the old standard, just for all the world as though he were in some way to blame.

This is the aftermath of the war, but as a set-off against it another class has sprung up, who for the most part live in less princely homes and possess smaller gardens. Many of them are fond of their gardens and spend their money freely on them. It is well that this is the case, otherwise the post-war revival of horticulture would never have been what we see it to-day.

Turning to another and more humble phase, perhaps the most remarkable outcome of the war is the development of the allotment movement. Before the war the allotment holder was a very commonplace individual who worked a plot of ground if he could get it—which was not always easy—but when we were looking the possibilities of starvation straight in the face workers in every walk of life were appealed to to produce food, and it may be said to their credit that they did their best. Incidentally, too, the war made allotment holders keep an eye on the future. They became organised, formed themselves into registered societies and unions which to-day are a power in the land. An Allotments Act of the type which was recently passed would probably have been laughed at in the House of Commons before the war, and the idea of allotment holders having representation on corporations would have been treated as an absurdity. Yet this has all come about, and, though we have no member of Parliament directly representing allotment holders at Westminster, this is by no means outside the bounds of possibility. The fact of the matter is that thousands of men got a plot of ground to cultivate during the war which would never have been acquired under conditions less serious, and, in addition to finding out that the cultivation of the plot is a sound business proposition, they have discovered a new hobby and have learnt to love gardening for its own sake.

It was a revelation to me not long ago to walk over a thousand acres of allotments on the outskirts of one great city, where twelve thousand allotment holders are organised in upwards of a dozen registered co-operative societies, representatives of which form the Federation of Allotment Societies in the city referred to. It has been said, and certainly with some truth, that the allotment movement is one of the few good things that have come out of the war. But be that as it may, the workers were provided with their plots to help save the country in the hour of the direst need. They will see to it that they retain their allotments under peace conditions for their own pleasure, recreation, and profit. *G. H. H.*

THE APPLE ROOM.

Your correspondent, *East Kent* (page 343, December 9, 1922), refers to the fact that though his Orleans Reinette Apples were quite sound when gathered they were so shrivelled by the first week in November as to be quite unfit for table. I observe that he had to gather them in October because they were dropping, and this unfortunately has been a fairly general experience this season; owing to early drought, few Apples attained their proper size and maturity, and I found it necessary to defer the harvesting of many varieties until a month later than usual as they were not ripe at the usual time, owing to lack of strong sun. The leaves remained on the trees longer this year than usual; in mid-December trees of Annie Elizabeth and Hambling's Seedling were in full green leaf, though they were transplanted three weeks previously.

To return more directly to the keeping of fruit, it is in the first place essential that the fruits should be fully ripened before they are gathered, and it will be found that such sorts as Reinette du Canada will often hang firmly on the tree until mid-December, despite a fairly open situation and strong winds, and they are best left out to the very last. This applies to all Apples that keep after Christmas. Apples will not always hang, however, so long as we wish, and it is essential to have a well-designed fruit-room to get the best results in keeping and ripening. My fruit-room has walls of solid masonry 14 inches thick, is about 14 feet long by 9 feet wide, and 8½ feet high; the roof is a flat slab of concrete 7 inches thick reinforced with iron bars embedded crosswise in the concrete. I attach the greatest possible value to thorough ventilation; the fruit-room requires a free circulation of pure air. In my fruit-house the entry of air without the admission of excessive light is secured by small chimneys or airways made in the walls during the process of building, by inserting about two feet from the ground a drain pipe or wooden roller about four inches in diameter and building around it, raising it as the work proceeds so that when finally withdrawn there is a cavity like a small chimney in the centre of the wall about five feet long, with an opening in the wall at the top to the outside air and at the bottom on the inside to the room; the chimney might be described as approximately like the letter Z. The outer apertures are covered with perforated zinc to keep out insects, etc., and I may add that they are twice the area of the drain pipe ends, so that the unperforated part of the zinc is compensated for, otherwise if of the same area the cavity would not admit so much air as it should. These airways are three to four feet apart on each long side of the building. On the top of the walls immediately under the concrete roof are two open windows, one foot by six inches each, and these also are covered outside with perforated zinc; they are on opposite sides of the house. These were an afterthought and were found to be necessary for efficient ventilation. The floor is of the natural subsoil, a very stiff but well-drained loam, but I intend to put a layer of concrete 1½ inch deep over this later on. I have divided a section about three and a half feet wide from the main fruit-room to serve as a pantry in which to store non-smelling foods, etc., that require cool conditions. The house stands alone; along the east and south sides it is sunk 3½ feet in the ground, owing to the slope of the land, and along the east wall are plants of Cupressus macrocarpa. No doubt if these were planted all round the house the interior would be still cooler. The door, a very substantial one, is in the north end; there are no windows, but the two open ventilators already described give a fair light, and the open door also admits light.

I use shelves for some of the fruit and put more in open boxes. The interior is limewashed. I may say that it is essential to mix the concrete for the roof with plenty of cement, otherwise it will not be impervious to wet. I found it necessary to paint my roof over with a waterproofing liquid to correct too much economy of cement in the original making of the roof. I think the cement should be in the proportion of one to three of gravel or sand for a flat roof like this. I find the waterproofing has made an effective cure, however. The concrete roof projects over the walls by about three inches, and this greatly improves the appearance of the building, which looks quite pleasing, contrary to what one might expect, and as it is within about 20 feet from my house, its appearance matters as well as its utility. It was placed so close that it should be convenient to the kitchen, an obviously desirable arrangement. This house has been in use several seasons, and has been found satisfactory. It may be shortly described as an overground cellar, if I may be permitted to call an overhead building a cellar just for this occasion. Without a proper fruit-room it will be found most difficult to ripen and keep late fruits with any satisfaction, and this fact forced me to put up this building. Such a building may easily be erected to suit the smallest or the largest needs, and the most modest garden need not lack its fruit-room; a little building eight feet by three feet would suit admirably and would hold a large quantity of fruit. Our late fruits are chiefly our best sorts and deserve good storage, otherwise it is little use to grow late Apples. *W. J. Farmer, Ye Hive, Redruth, Cornwall.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Tuber formation in Potato Seedlings.—With reference to my remarks on Thladiantha dubia, on p. 371, Vol. LXXII., and the raising of Potato seedlings in pots or pans, I have many times observed that the tuber-producing stems are from buds in the axils of the seed-leaves. This, I think, is because the seedlings are more or less upright, and I cannot suppose that any special habit is indicated. It is to be expected that seedlings having plenty of room would fall over, and that any leaf axils near the soil could produce tuber-bearing stems. I have never observed a tuber in the axils of a seedling. *R. I. L.*

Caustic Fruit Wash.—Replying to a correspondent on page 374, Vol. LXXII., you recommend that carbonate of potash should be added to caustic soda in the preparation of a winter wash for fruit trees. There cannot be the slightest doubt that the formula given is an excellent one which, carefully and correctly applied, will clean the trees of accumulations of moss and lichen. The question that arises in my mind, however, and one on which it is, I think, desirable that the practical views of your fruit-growing readers should be brought prominently to the fore, is whether the addition of the carbonate of potash does the slightest good. Admittedly it does no harm, but the addition of even one constituent to a solution increases the trouble of preparation, and should, therefore, be omitted, except in case of necessity. If a caustic wash is imperative, and very sound reasons can be raised against its use, I do not think that it is possible to find a better one than the simule 1 lb. caustic soda, 98 per cent. purity, dissolved in 10 gallons of hot water, and desirably used hot on the rough bark of an old tree. It is quite immaterial whether soft soap is added or not, as its sole advantage is to increase adhesiveness, and that is not needed when the wash is brushed on rough bark and exceedingly finely sprayed on all other portions of the tree. I have used caustic washes of this nature repeatedly, and have proved, to my own satisfaction at least, that neither carbonate of potash nor soft soap improves their effectiveness, and have consequently refrained from their use for several years. The principal objection to the application of such caustic washes is that bud injury is almost inevitable, unless extreme care is taken in applying the specific, while there is the further decided disadvantage that, owing to their intense burning properties, they are peculiarly objectionable to handle. Unless trees are extraordinarily filthy, when scraping will become an essential part of the cleansing process, a fine grade lime-sulphur solution will bring about equally satisfactory results, and it will be found infinitely preferable to apply, notwithstanding the pungent odour. The subject is one of sufficient importance for discussion in your columns, and I hope that all your experienced readers will give their views on it. *W. Tiplow.*

SOCIETIES

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, December 7.—Committee present: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, H. Astley Bill, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, A. T. Cussons, D. A. Cowan, J. C. Cowan, J. Cypher, A. G. Ellwood, J. Evans, W. Giles, A. Hanmer, J. Howes, J. Jackson, W. M. Jackson, A. Keeling, D. L. Thorpe, D. McLeod, F. K. Sander, E. W. Thompson, J. Whitham, and H. Arthur (secretary).

First Class Certificates.

Cypripedium Britain's Monarch (*Alcibiades* × *Earl Tankerville*), a good shaped flower with a white dorsal sepal, the green base being covered with red spots; the petals and pouch are coloured light brown; *Cyp. Minotaur* (*Hera* × *nitens Leeanum*), the flat dorsal sepal is white with red spots, the green base having black spots; the petals and lip are light brown. From S. Gratrix, Esq.

Odontoglossum Llewelyn var. Radiant. One of the largest and most highly coloured of the type, with broad sepals and petals; *Cypripedium Moonlight var. Delicata.* A flower having a large, flat, white dorsal sepal with a greenish-yellow base, and petals and lip of the same shade. From Mrs. Gratrix.

Eulophiella Rolfei (*Peetersii* × *Elizabethiae*), a fine deep pink flower with white inside the lip. From B. J. Beckton, Esq.

Cypripedium Monialis var. Hilda Sharp. The finest Niobe hybrid yet seen. The large, flat dorsal sepal is claret colour with a white margin, the petals and lip being deep brown. From the Rev. J. Crombleholme.

Odontoglossum crispum var. Fred Hardy, a flower heavily blotched with purplish-red. From Fred Hardy, Esq.

Cypripedium Godefroyae splendens, a beautifully marked flower with a white lip. From P. Smith, Esq.

Awards of Merit.

Calanthe Glad Eye (*Bryan* × *rubro-occulata*); *Calanthe revertens*, and *Cypripedium Torelor Beckton's var.* (*burtonense* × *Amazon*). From B. J. Beckton, Esq.

Cypripedium Cappa-magna var. Victoria; *Cyp. Othello St. Mary's var.*; *Cyp. Verona var. Furens* (*leeanum* × *Beckmanii*). From the Rev. J. Crombleholme.

Cypripedium Troilus var. Jupiter; *Odontioda Antinea* (*illustrissimum* × *Odta. Wilsonii*); and *Laelio-Cattleya Britannia var. plumosa.* From P. Smith, Esq.

Cypripedium Lord Wolmer Westonbirt var., and *Cyp. Lady Gray.* From Mrs. Gratrix.

Cypripedium Sir H. Rawlinson Chardwar var., and *Cyp. Nydia Westonbirt var.* From Dr. Craven Moore.

Cypripedium Kervallii (*Actaeus langleyense* × *Mary Gratrix*), and *Cymbidium Mastersii Cusson's var.* From A. T. Cussons, Esq.

Cypripedium Chorltonville (*Shogun* × *Pyramus*), and *Cyp. Alethea* (*Gaston Bultel* × *Euryades splendens*). From S. Gratrix, Esq.

Odontoglossum Ardendora var. Radiance. From A. Hanmer, Esq.

Cypripedium Chrysotens Usk Priory var. From Messrs. Cypher and Sons.

Odontoglossum Florence (*Rolfeae* × *Rosalind*). From Messrs. Mansell and Hatcher.

Cypripedium Emerald (*Curtisii Sanderae* × *Maudiae*). From Messrs. Sanders.

Groups.

S. Gratrix, Esq., Manchester (gr., Mr. J. Howes), staged a group for which a Gold Medal was awarded. B. J. Beckton, Esq., Irlams-o'-

th'-Height (gr., Mr. W. A. Stewart), was also awarded a Gold Medal for an interesting group of Orchids.

Mrs. Bruce and Miss Wrigley, Bury (gr., Mr. A. Burns), staged a group of Cypripediums in great variety, for which a large Silver-gilt Medal was awarded. A. Hanmer, Esq., Buxton (gr., Mr. G. Giles), was also awarded a large Silver-gilt Medal for a group.

The Rev. J. Crombleholme, Clayton-le-Moors (gr., Mr. Marshall), staged a group principally of home-raised seedlings, and was awarded a large Silver Medal.

A. T. Cussons, Esq., Prestwich (gr., Mr. F. Cookson), also received a large Silver Medal for a group.

Messrs. Charlesworth and Co., Hayward's Heath, were awarded a Silver-gilt Medal for a miscellaneous group.

Messrs. J. Cypher and Sons, Cheltenham, staged a group to which a Silver-gilt Medal was awarded.

Messrs. Mansell and Hatcher were awarded a large Silver Medal for a group of Orchids.

Mr. D. McLeod, Chorlton-cum-Hardy, was also awarded a large Silver Medal for a group.

Messrs. Keeling and Sons, Bradford, staged a group for which a Silver medal was awarded.

Mr. E. Shaw, Congleton, was awarded a Silver-gilt Medal for a collection of paintings of Orchid flowers.

ROYAL HORTICULTURAL OF IRELAND.

The 93rd annual general meeting of the society, the President, the Marquis of Headfort, presiding, held at the Engineer's Hall, Dawson Street, Dublin, on the 22nd ult., proved a pleasing function. The occasion was availed of for presenting the testimonial to Sir Frederick and Lady Moore from 246 members and friends, on Sir Frederick's retirement from the Royal Botanic Gardens, Glasnevin, as a mark of their appreciation of his great services to horticulture.

Business proceedings included the adoption of the report a statement of accounts for the year ending December 1, 1922, which was considered satisfactory under the trying times of the past year, the accounts closing with a cash balance to credit of £66 17s. 1d. Special votes of thanks were accorded to the Earl of Iveagh, K.P., for his kindness in allowing the shows to be held in the fine covered court attached to his Dublin residence, and to Mr. E. H. Walpole for his concession in affording members the privilege of visiting his unique gardens at Mount Usher, Co. Wicklow.

At the conclusion of the business the testimonial, which took the form of a silver kettle specially made to match some silver presented to Sir Frederick's father, Dr. David Moore, some 65 years ago, was handed by the Chairman to Lady Moore, and a cheque was handed to Sir Frederick accompanied by an inscribed roll of the subscribers, with felicitously expressed remarks on Sir Frederick's distinguished career. The noble Marquis said he was thankful to say the society still had the benefit of Sir Frederick's services as Hon. Secretary, and trusted it would have them for long years to come, and that it was a remarkable record that he, Sir Frederick, with his father before him, had ruled for over 80 years in a kindly and helpful way in Glasnevin, and raised it to the status it now held of being second to none of the great horticultural gardens of the world. He esteemed it an honour to be permitted to make the presentation which had been subscribed by friends in England, Scotland, and Wales, as well as Ireland. Sir Frederick, in his reply, evinced the keen interest he has in the society's work and welfare, and acknowledging the testimonial, said he regarded that day not as a milestone but a monument in his life. Lady Moore briefly but happily expressed her evident pleasure and appreciation of the gift.

Obituary.

M. Gaston Bonnier.—We learn that M. Gaston Bonnier, a French botanist and scientist of considerable repute, died during the early part of this week

TRADE NOTES.

We have received the following letter from Mr. C. J. Thomson, Editor of *The Canadian Horticulturist*, Peterboro, Ontario :—

Recently a well-known seed and nursery firm in England called our attention to the fact that Canada does not allow any nursery stock, such as trees, shrubs, vines, plants, etc., to be imported, and went on to say that Canada was doing what she could to strangle this trade.

This is an entirely wrong interpretation of the regulations relating to the importation of the stock mentioned into Canada, and we are bringing the matter to your attention, in case this misunderstanding is held by other nursery firms who would like to develop a trade with the Dominion. Nursery stock can be imported into Canada, but only by express or freight. Bulbs and herbaceous perennials may be imported by mail.

In order to secure authoritative information, the matter was taken up with the Chief of the Division of Foreign Pests Suppression of the Department of Agriculture, Ottawa, who replied in a letter as follows :—

"I am in receipt of your letter of the 16th inst., in which you enclose a communication from an English nursery firm in reference to the importation of nursery stock from Great Britain into the Dominion of Canada. I may say that this is not the first rumour of this kind that has reached us during the past eighteen months, and we have been endeavouring to trace the source of this rumour, which states that Canada has prohibited the importation of nursery stock from England, but have met with no success so far. The only explanation that we have been able to obtain so far is that the present regulations have been misquoted as the importation of nursery stock through the mail is prohibited. This applies to importations from any country. There have been no changes in the regulations under the Destructive Insect and Pest Act up to the present time. Bulbs, herbaceous perennials, etc., may be imported via the mails, but all nursery stock must come in either by express or freight."

We believe this matter is of sufficient interest to bring before your readers, and so would ask you to give it some publicity.

Exporters of Potatos should note that by a decree dated November 4, 1922, Potatos destined for consumption which are imported into the French Zone of Morocco in future will be subject to the existing regulations respecting the importation of plants and parts of plants for propagation. These regulations provide that consignments may only be imported through ports open to commerce and through Oujda, and each consignment must be accompanied by a certificate issued by the official phytopathological service of the country of origin. Application for such certificates in respect of Potatos grown in England and Wales should be made to the Ministry of Agriculture and Fisheries, at least ten days before the Potatos are to be shipped, in order that arrangements may be made for an inspection of the Potatos at the time of bagging.

CATALOGUES RECEIVED.

Hewitt & Co., Ltd., Solihull.—Gladioli.
D. G. Purdie, 6, Waterloo Street, Glasgow.—Seed Potatos.
H. J. Jones, Hither Green, Lewisham.—Chrysanthemum novelties.
Samsons, Ltd., 8 and 10, Portland Street, Kilmarnock.—Seeds and Plants.

Flower and Vegetable Seeds.

Sale and Son, Wokingham, Berkshire.
Fogwills Seed House, Guildford.
Leighton's, 36, Renfield Street, Glasgow.
Fisher, Son & Sibray, Ltd., Handsworth, Sheffield.
McHattie and Co., Chester.
Watkins & Simpson, Ltd., Drury Lane, W.C.2.
David Bell, Ltd., Leith (Wholesale).
Robert Veitch and Son, 54, High Street, Exeter.
Alfred Dawkins, 408, King's Road, Chelsea.
Dickson, Brown & Tait, Manchester.
Dickson & Robinson, Cathedral Street, Manchester.—

Foreign.

Zwaan & de Wiljes, Ltd., Scheemda, Holland.—Seeds (wholesale).

ANSWERS TO CORRESPONDENTS.

Cyaniding a Peach House: *H. C.* It would be quite safe to cyanide your Peach house while the trees are dormant, in the same way as you have treated your vinery for the extermination of mealy bug. At the same time a winter wash, such as V.I. Fluid, used according to directions should clean the trees. If the trees are old, stop all holes and cracks with neat Gishurst Compound. Thoroughly wash the house, and remove all loose and exhausted soil, especially from dry places, before top dressing the border. If you do this and keep a sharp watch for insects when the buds are breaking, you should have no difficulty in keeping the trees clean.

Diseases of Onions: *G. L.* Onions are attacked in summer by two distinct diseases —one, a mildew, caused by the fungus Peronospora Schleideni, and the other a totally different disease called White Rot (though sometimes erroneously alluded to as mildew), caused by the fungus Sclerotium cepivorum. With regard to the mildew, the plants are attacked in the leaf, and the mildew is carried by spores from leaf to leaf, and shows as a minute, downy mildew on the leaves. The roots are not attacked. A spray or powder fungicide is the best remedy. The second disease White Rot has an entirely different life-history. The fungus lives in the soil, attacks the roots of the plants from about the month of May onwards, and grows up into the bulb, causing its more or less complete destruction. The leaves are not affected, though they turn yellow and die as a result of the injury at the root. Spraying is of no use for this disease; a soil fungicide is required, but so far nothing effectual has been discovered. When the soil is badly infected, the only course is to plant the Onions on clean ground.

Names of Fruit: *G. E. G.* 2, Woodcock; 3, Cockle Pippin; 4, Cox's Pomona. *J. P. B.* 1, 2, 5, and 7, decayed, not recognised; 3, Mdme. André Leroy; 4, Glou Morceau; 6, Beurré Rance; 8, Chaumontel. *W. B.* 1, Fearn's Pippin; 2, Broad Eyed Pippin; 3, Radford Beauty; 4, Dumelow's Seedling (syn. Wellington); 5, Cox's Orange Pippin; 6, Tower of Glammis. *W. T.* Not recognised; shrivelled, gathered before mature. *G. T.* 1, Kerry Pippin; 2, Calville St. Sauveur; 3, Brabant Bellefleur; 4, Egremont Russet; 5, Allington Pippin; 6, Annie Elizabeth; 7, Washington; 8, Roundway's Magnum Bonum; 9, Dutch Mignonne; 10, Dean's Codlin; 11, Dumelow's Seedling (syn. Wellington); 12, Lady Henniker. *I. H., Dingley.* 1, Rymer; 2, American Mother. *S. L. H.* 1, Lady Henniker; 2, Mère de Ménage; 3, Sturmer Pippin.

Names of Plants: *R. I. H.* 1, 4, and 6, Cupressus Lawsoniana vars.; 2, Abies nordmanniana; 3, Cupressus pisifera var. plumosa; 5, Thuya occidentalis; 7, Cedrus Libani; 8, Juniperus chinensis; 9, Abies lasiocarpa; 10, Tsuga canadensis; 11, Pinus Cembra; 12, Sequoia gigantea.

Painting Hot Water Pipes: *T. H.* Lamp black and boiled linseed oil, mixed to the consistency of paint, is all you require for painting your hot water pipes. Have the pipes just warm when painting them, and use neither turpentine nor raw oil, or the pipes will remain dull after painting.

Weeds in a Crazy Path: *B. R.* The best method of destroying weeds in the crazy path is to use weed killer, but if this is objected to, the plants may be destroyed by boiling water, in which a pound or two of salt has been dissolved. Salt alone would be sufficient to kill the weeds, but its application to each individual weed would be a rather tedious method

Communications Received.—J. A.—R. A.—P. S.—H. A. I. M.—W. M.—B. and W.

THE

Gardeners' Chronicle

No. 1881.—*SATURDAY, JANUARY* 13, 1923

CONTENTS.

Allotments in Scotland 16
Alpine garden, the—
  Douglasia Vitaliana .. 21
  Synthyris 21
Anthemis cupaniana .. 26
Apple, a seedless and coreless 16
Apples, home-grown *versus* imported .. 27
Arnold Arboretum .. 15
Australia, notes from— 20
Books, notices of—
  Fruit Trades Year Book and Diary 17
  "Gardeners' Chronicle" Directory and Year Book 16
British Carnation Society's annual meeting and dinner .. 15
Cottle's, Dr., expedition to the East .. 15
Cumberland and Westmorland Potato Growers' Association .. 16
Fernery, the—
  Gymnogramme leptophylla 17
Flower border, hardy—
  Campanulas 21
  Rudbeckia pinnata .. 21
  Tricyrtis hirta 21
Fruit garden, the market 24
Galt, Mr. Alex. S. .. 16
"Gardeners' Chronicle" seventy-five years ago 17
Ghent quinquennial exhibition 16
Indoor plants— 20
Legacy to a nursery manager 17
Lithospermum prostratum 26
Lonicera Hildebrandtiana 26
Orchid notes and gleanings— 17
Pear, prolification of .. 19
Plants of special garden merit 23
Potato, degeneration of the 25
Rainfall at Tirley Garth Gardens in 1922 .. 15
Rhododendron on limestone 26
Roville Horticultural College, centenary of the 16
Societies—
  Tenure of land for 900 years 16
Teucrium fruticans .. 26
Tithe rent charge, redemption of 16
Trees and shrubs—
  Brooms for woodland planting 23
Vegetables—
  Early Potatos .. 26
Ward's, Mr. Kingdon, seventh expedition in Asia 22
Week's work, the .. 18
Wisley, notes from .. 19

ILLUSTRATIONS.

Angraecum mirabile 17
Fruit, a fine exhibit of dessert 29
Galt, Mr. Alex. S., portrait of 16
Pear, prolification of 19
Pyracantha Gibbsii 23
Rubus biflorus var. quinqueflorus 22
Rudbeckia pinnata 21

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 37.9°.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 10, 10 a.m. Bar. 30.2; temp., 43°. Weather—Dull.

The Arnold Arboretum. Within the compass of less than fifty pages* Professor Sargent, the veteran Director of the Arboretum, has recorded the history of the past fifty years of the greatest arboretum in the world—that at Boston in Massachusetts. It is a history of splendid achievement enhanced by the laconic style in which it is written. In it there is none "of Caesar's thrasonical brag"—I came, I saw, I overcame—yet none the less the reader of this quietly told story cannot fail to perceive—what all horticulturists know—that the achievements of the Arnold Arboretum have been great, because they are, in the main, those of a great man—Professor Sargent. The Arboretum owes its origin to James Arnold, a merchant of New Bedford, Massachusetts, who bequeathed a part of his estate to trustees for the promotion of agricultural or horticultural improvements. The trustees were well chosen. The senior, G. B. Emerson, was greatly interested in trees, and the author of a report prepared for the Commonwealth on "The Trees and Shrubs growing naturally in the Forests of Massachusetts." Mr. Dixwell, the second trustee, was also a lover and student of trees and the creator of an arboretum in Jamaica Plain. They determined to apply the Arnold bequest to the establishment of a station for the cultivation and study of trees, and to give greater prominence to the station the trustees placed it under the control of Harvard. The beginnings of the Arnold Arboretum were auspicious, for the first director appointed in 1873 by the President and Fellows of Harvard was Sargent. The task which lay before the Director might have appalled a weaker man. From a worn out farm encumbered in part with natural plantations of trees nearly ruined by excessive pasturage, he had to create a scientific garden with a revenue of less than three thousand dollars a year. With rare foresight Sargent recognised that the way to provide for developments and to give assured prominence to the Arboretum was to link it with the city of Boston in such a way that whilst the land should serve as a public park, it should still be available for the purposes of an Arboretum. As years went on, more land was acquired until now the Arboretum covers approximately two hundred and fifty acres. Within it are meadows and hills and valleys, and its most prominent feature is Hemlock Hill, with high, steep cliffs covered so thickly with Hemlock trees that the rays of the sun scarcely penetrate to the ground beneath them. In the arboretum the trees are planted in family groups in botanical sequence, beginning with the Magnoliaceae and ending with Pinaceae. Each kind is planted in a group and of each there is also a single specimen planted near the drive. In addition to trees, hardy shrubs are planted in beds ten feet wide and covering a length of 7,765 feet, grass paths separating the beds. The specimens are representative of the cool temperature and colder parts of North America, Europe and Asia, including the higher altitude of the Himalayas and more southern mountains. Plants from the southern hemisphere are, however, not represented, as none—not even those from the high Andes, Southern Chile, nor the higher mountains of New Zealand—have proved hardy in the Arboretum. The collection nevertheless numbers between five and six thousand species and varieties of tree and shrub. In the work of making so vast a collection North America, Europe, the Caucasus, Siberia, Korea, the Empire of Japan, have been each laid under contribution. Of the collectors for the Arboretum, Mr. E. H. Wilson, the Assistant-Director, has won for himself, and for the Arboretum, great renown. There is, indeed, scarcely a country in the world which has not been visited and explored by Wilson or by other of the agents of the Arboretum. The list of introduced plants, which covers eighteen pages, is a tribute to the energy and success with which the work of discovering and introducing valuable plants has been conducted. Those who have had the good fortune to visit the Arboretum will have the memory of its beauties quickened as they scan the list of species or varieties of Acer, Berberis, Crataegus, Lonicera, Malus, Prunus, Rhododendron, Rubus, Viburnum and other ornamental trees and shrubs which embellish it; of Hawthorns alone there are 735 species and varieties. No account of the Arnold Arboretum would be complete without reference to Jackson T. Dawson, the sturdy Yorkshireman, the first superintendent, who held his office till 1916. As Professor Sargent states, Dawson was unrivalled as a propagator of plants. It is estimated that during his forty-two years of service, Dawson raised over a million plants, and it is certain that there are few public or private gardens in the northern hemisphere which do not owe some of their beauty to his talent. And now, after looking back on his labours of fifty years, Prof. Sargent turns in the concluding pages of his history to indicate what should be the future developments of the Arboretum. He sees in it a great organisation for the advancement of knowledge of trees, one which shall continue to be even in increasing measure a help and inspiration not only to American students and growers of trees, but to those of all nations. It will be the hope of all horticulturists that Prof. Sargent's aspirations for the further development of the Arboretum may be fulfilled; but no matter how brilliant the future of the Institution may be, it will always gain lustre in the eyes of men by reason of the present Director's great and continued good work in promoting knowledge and love of trees.

Our Almanac for 1923.—Continuing our usual custom, we present our readers with an Almanac for the ensuing year. Every endeavour has been made to secure accuracy in the dates of meetings and exhibitions, and those given have been sent us by the secretaries of the societies concerned. It may save some correspondence if we point out that the meetings of the Wakefield Tulip Society are held on Sundays. Some dates are provisional, and, of course, circumstances may combine to necessitate the alteration of certain exhibition dates given, but readers will understand we are not responsible for inaccuracies arising in this way. *The Gardeners' Chronicle* Almanac for 1923, printed in two colours and on better paper than usual, will, we believe, prove as useful to readers as its many predecessors.

Dr. Cottle's Expedition.—It is interesting to learn that Sir Jeremiah Colman, Bart., Gatton Park, has received the first consignment of Orchids collected by Dr. Cottle. On his way to the East, Dr. Cottle called at Paramaribo and stayed for some weeks in Dutch Guiana. Leaving the "Malaya" he made a motor boat trip of 120 miles up the Saramocca River; and thence by canoes he explored many creeks. Orchid collecting in the Guiana swamps he found difficult, and his journey was associated with fevers and insect pests. Included in the species collected are: Aspasia, Brassia, Epidendrum, Stanhopea, Stelis, Gongora. Ornithidium Ornithocephalus, Zygopetalum, Maxillaria, Polystachya, and Rodriguezia. At the present time such an importation is specially valuable, as new species will probably be included as well as some already known to science, but possibly not now represented in gardens.

British Carnation Society's Annual Meeting and Dinner.—The Annual General Meeting of this Society will be held on Tuesday, January 16, at the Hotel Belgravia, Victoria, London, S.W., at 7.30 p.m., preceded by dinner at 6.30 p.m.; tickets 5s. 6d. each. The Society's Floral Committee will meet at the Royal Horticultural Hall, on Tuesday, January 16, at 10.30 a.m., for the consideration of new varieties. Meetings will also be held for a similar purpose, at the same place and hour, on the occasion of the first meetings of the R.H.S., in February and March. Raisers are invited to correspond with the Hon. Secretary, Mr. P. F. Bunyard, 57, Kidderminster Road, Croydon.

Gardeners' Royal Benevolent Institution.—The annual meeting of this excellent charity and the election of beneficiaries to its fund will take place on January 25, at Simpson's Restaurant, 101, Strand, W.C.2, commencing at 2.45 p.m. The voting papers have been sent out to subscribers and these, duly filled in and signed, should be forwarded to the Secretary, 92, Victoria Street, S.W., on or before January 24, or failing that, should be delivered to the chairman at the place of meeting before 4 o'clock on January 25.

Rainfall in 1922 at Tirley Garth Gardens, Tarporley.—Mr. J. B. Allen informs us that the rainfall at Tirley Garth during the past year amounted to 29.98 inches, or 8.67 inches more than in 1921. The heaviest rainfall occurred on July 5 and December 18, when on each day 1.18 inch was registered. October was the driest month, with .39 of an inch. In September the rainfall amounted to 4.13 inches, and this was the wettest month of the year, with 14 rainy days. December had the largest number of rainy days, with a total of 25. There were 190 days in the year on which .01 of an inch or more of rain was registered, and 146 rainy days on which .04 of an inch or more was registered. The driest spell of weather was from May 21 to June 11, when there were 21 dry days. The hottest day was May 31, when the thermometer rose to 87° in the shade. The coldest day was February 5, when 14° of frost was registered.

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* The First Fifty Years of the Arnold Arboretum. *Journal of the Arnold Arboretum.* Vol. III., No. 3, January, 1923.

Redemption of Tithe Rent Charge.—The Minister of Agriculture and Fisheries gives notice that, for the purpose of the redemption of tithe rent charge for which application is made after December 31, 1922, until further notice, the "gross annual value" for the purposes of the Tithe Act, 1918, will be at the rate of £104 for each £100 of tithe rent charge (commuted value) and the compensation for redemption will be twenty-two times the "gross annual value" after the deductions therefrom prescribed by the said Act have been made. The above figures have been settled on the recommendation of a Departmental Committee consisting of Sir Charles Longmore, K.C.B. (Chairman), Sir Henry Rew, K.C.B., and Mr. W. R. Le Fanu

Continuous Tenure of Land for 900 Years.—According to *The Times*, investigations made by the French Ministry of Agriculture with a view to the award of the Croix de Merite Agricole have brought to light a case of continuous tenure of the same lands by the same family since the year 1023. M. Lascassiès-Pouplan, of Lucgarrier, near Pau, the present holder and the twenty-fourth in succession as head of the family, keeps the old family documents which have proved his claim in a cupboard, bound with iron, which is itself so old that its exact age is not known. Among the documents is a book in which an ancestor has entered the names and dates of births of all his predecessors as far back as he could trace them. M. Lascassiès-Pouplan now holds about two hundred acres. He has been Mayor of Lucgarrier since 1907.

Allotments in Scotland.—The Glasgow Corporation has been invited by the Secretary for Scotland to consider the expediency of encouraging an enlarged type of allotments around the city. According to the *Glasgow Herald*, the scheme is intended to be a relief measure for unemployment, by affording means for the maintenance on the land of numbers of persons who are at present entirely dependent on urban industry. As the proposal is to provide four or five acres of arable land for each holder the scheme is intended to provide a means of livelihood. It would require a person's whole time to cultivate such an area; indeed, we doubt whether a skilled person would be able to manage a plot of that size alone. The *Glasgow Herald* is, we think, right in its contentions that the time is inopportune for the launching of such a scheme, as skilled cultivators of the soil are finding it exceedingly difficult to make small holdings profitable, owing to a variety of causes, the chief of which is the great slump in prices for produce. In rural areas it might be possible to retain on the land men already engaged in such cultivation, but it is doubtful if townsmen would take kindly to such work, for experience has proved that in the majority of cases they are entirely unfitted for a rural occupation of this nature.

Cumberland and Westmorland Potato Growers' Association.—A meeting of Cumberland and Westmorland farmers, Potato-growers, and seed merchants, called by Principal R. Lindsay Robb, Newton Rigg Farm School, and Mr. R. B. Strang, of the Ministry of Agriculture, was held in the George Hotel, Penrith, on Tuesday the 2nd inst., to consider the advisability of forming a Potato Growers' Association for the two counties. The meeting was very largely attended, and those present unanimously decided to form such an association. Mr. F. Armstrong, White Ox Farm, was elected chairman, and Principal R. Lindsay Robb, Vice-Chairman, with a strong committee consisting of twelve representatives from each county. Mr. D. S. Anderson, Horticultural Department, Newton Rigg Farm School, was appointed Secretary and Treasurer.

Mr. Alex. S. Galt.—The lecturer and adviser in horticulture to the University of Leeds, though still a young man, has had a wide and various experience in horticultural matters, and this experience has been of incalculable value to him since he became associated with horticultural activities in Yorkshire. His father, an old Kewite, was a famous gardener, and for many years had charge of the beautiful gardens at Aldermaston Court, near Reading, where the subject of this note was born. His early education was acquired at Aldermaston and at Mortimer West, but this was supplemented by study at the science and art classes at the University College, Reading. Commencing his horticultural training at home, he obtained experience at several gardens and nurseries in various parts of England and in Wales, including a period of two years in the Royal Gardens, Kew. After this practical training, Mr. A. S. Galt became a journalist and for some time was on the staff of *The Gardening World*, under Mr. Brian Wynne, and subsequently under Mr. J. Fraser; eventually he joined Messrs. Cassells and edited *Popular Science*. Leaving journalism, he became Instructor in Horticulture to the Technical Education Committee of the Berkshire County Council, but gave up this appointment to take over a market nursery and fruit farm, where the principal crops he cultivated were Cucumbers, Tomatos, Grapes, Nuts and hardy fruits generally. Concerning this business Mr. Galt naïvely observes that although he did not make much money out of it, he obtained a lot of invaluable commercial experience. In 1908 he became Instructor in Horticulture in Yorkshire, and was appointed Horticultural Lecturer and Organiser in 1917. At this period his activities covered the three Ridings of Yorkshire, a huge area with varied soil and climatic conditions, and his work included lecturing to allotment holders, the training of teachers, University classes, Training College classes, advisor in cultural problems, the oversight of school gardens, and administrative work generally. During the war Mr. Galt was occupied largely in lecturing on food production in various parts of the county, and his record attendance for any one meeting was an audience of 3.500. During the same period he was adviser to the Northern Command in connection with the cultivation areas attached to the numerous camps, and he also assisted Mr. F. J. Chittenden at Wisley in connection with the Horticultural Lecturers' training classes. His present position is that of Lecturer and Adviser in Horticulture at the University of Leeds and supervisor of the University grounds and playing fields. He is Lecturer in Horticulture at Leeds and Bingley Training Colleges, the representative of the University of Leeds to the Chamber of Horticulture, and garden editor of the *Yorkshire Weekly Post*. Mr. Galt is the author of numerous pamphlets published by the University of Leeds, and has for the last four years been examiner in horticulture at University College, Reading.

MR. ALEXANDER S. GALT.

Centenary of the Roville Horticultural College.—On November 18, 1922, the centenary of the founding of the training college at Roville was celebrated at Nancy, France. M. Henry Chéron, Minister of Agriculture, was present, and gave an interesting address dealing with the life and work of Mathieu de Dombasle, the founder of the college. M. Chéron said that what he chiefly admired about de Dombasle was the indomitable faith which saw a great future for French agriculture. All great men had faith; without it they could never influence their fellow-men. It was for those who profited by de Dombasle's great work to continue it to the best of their ability, and, like him, to have faith.

Horticultural Directory and Year Book.—Our *Horticultural Directory and Year Book*, containing a list of the principal gardens in the country, together with an alphabetical list of gardeners and their addresses, and other useful matters of reference, has been thoroughly revised, and is issued by our Publishing Department for 3s. 6d. net; 4s. post free. The previous edition was revised in 1919, and as there have been many changes in gardens since that time the new work forms a valuable up-to-date list of gardeners and their addresses, such as is especially useful to nurserymen and horticultural traders generally. The old features of the work are retained, including postal information, names and addresses of county staff instructors in horticulture; a list of the principal horticultural societies in Great Britain and Ireland; botanical gardens at home and abroad; the principal public parks and gardens in Great Britain and Ireland; and addresses of nurserymen in Great Britain and Ireland. Every effort has been made to ensure accuracy, and the work, now the only one of its kind, has been reissued in response to numerous applications from those who find it a valuable companion for the desk.

Ghent Quinquennial Exhibition.—The Joint Sub-Committee of the Chamber of Horticulture and the Royal Horticultural Society has arranged to hold a conference at 18, Bedford Square, on Wednesday, January 17 next, 11.30 a.m., to which all growers and firms interested in taking part in the Ghent Quinquennial Exhibition are invited. The show takes place at Ghent from April 14 to 22. Many leading firms already have intimated their intention of making an individual display and taking part in a collective English exhibit. It is hoped that others contemplating taking part will make a point of attending the above conference, when plans will be discussed.

A Seedless and Coreless Apple.—An exhibitor in Canada, at a meeting of the Pomological and Fruit Growing Society of the Province of Quebec, showed a seedless and coreless Apple of the Fameuse type. According to the American *Florists' Exchange*, the business of the meeting was almost forgotten in discussing the strange specimen. The Apple is said to be slightly more flattened at the end and a little longer than the ordinary Fameuse, but has the typical colouring and flavour of that variety. Except for a faint colouring of the flesh at the centre, the Apple is said to be without even a vestigial core. It was found by Mr. Buzzell, of Abbotsford, Quebec, in a new orchard where the trees are just coming into bearing. Whether or not the tree will bear coreless Apples again is not certain, but if it can be perpetuated it would prove, as the *Florists' Exchange* states, of enormous value.

A Handy Diary for the Desk.—The diary issued by the Lockwood Press, under the title "The Fruit, Flower and Vegetable Trades Year Book and Diary," is of more service than the majority of such publications, for the diary section allows plenty of space for making records each day of the year, and each page of the diary is conveniently inter-leaved with blotting paper. The book would serve the purpose of gardeners for making notes of sowing and planting and other routine work of the garden, as well as for recording events, dates of shows, meetings, etc. The pages are also ruled for entering moneys received and paid, whilst those for recording memoranda are handy to jot down particulars that might otherwise pass from the memory. Those engaged in the fruit, flower and vegetable trades are presented with a mass of useful information, much of which, such as a spraying calendar, monthly operations in the orchard, garden and nursery, tables of weights and measures, distances at which to plant, sizes of flower-pots, a ready reckoner, and postal information, are of value to gardeners. Traders will be especially interested in the very complete returns of prices realised for garden produce in Covent Garden Market, each month of the year, the statistical tables of imports, and the various Government enactments having a direct bearing on their particular industry. The diary is good value for the small sum of 2s. net at which it is sold.

Legacy to a Nursery Manager.—The late Mr. Wm. Whorlow Bunting, J.P., of Trinity Lodge, Colchester, head of Messrs. Bunting and Sons, bulb merchants, who died on August 8, leaving property to the value of £28,806, bequeathed his freehold nursery ground, with the dwelling-house and greenhouses in Lexden Road, also his business capital and stock, to Ernest Joseph Barnes, his manager, subject to the payment by him of £250 a year to the executors during the life of his wife, an annuity of £52 to Martha Smee, any amount as the net value of the premises should exceed £20,000, and all death duties. Mr. Bunting also left £100 each to his foremen, Alfred Schafle, Walter Glayden, and William Wilsher.

Appointments for the Ensuing Week.—Monday, January 15.—Royal Oxfordshire Horticultural Society's annual meeting. Tuesday, January 16.—Royal Horticultural Society's committee meet; National Rose Society's annual meeting. Thursday, January 18.—Manchester and North of England Orchid Society's meeting; Aberystwyth Chrysanthemum Society's annual meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Eshton Hall Vines.* In last week's paper you allude to Mr. Roberts' success in Vine growing at Eshton Hall up to 1841. But Mr. Roberts did not leave Eshton Hall till May 16, 1844. I went on the 15th of the same month, and found the Vines in a good growing state, with plenty of Grapes on them, and they still remain in good condition. I have, on the rafters, thirty-four Vines, and on the back wall thirty, making in all sixty-four Vines, each of which produces yearly twenty pounds of Grapes. My plan is not to allow a Vine to bear more than twenty bunches of Grapes, which swell finely, and we might travel a long way ere we met with Vines to match those at Eshton. I have this year obtained eleven prizes for Grapes at three shows, and last year seven prizes at two shows. In fifteen years I have received sixty-four prizes for Grapes in Lancashire and Yorkshire. Mr. Roberts and I do not essentially differ in the treatment of the Vine. I agree with the maxims laid down in his book, with one exception, viz., the carrion. For a border I like fresh sods and dung in a fresh state—say, six cartloads of good sods, one cartload of leaf mould, and one cartload of horse-droppings, in the same state as used for Mushroom beds; this mixed up together, and also applied as top dressing every year, will keep Vines in a flourishing condition. This compost is what I have used for new borders, and for top-dressing old borders, for above thirty years, and I have always met with success.—*George Cherry, Eshton Hall, Dec.* 29. *Gard. Chron., Jan.* 8, 1848.

ORCHID NOTES AND GLEANINGS

ANGRAECUM MIRABILE, HORT.

THE charming Angraecum exhibited by Messrs. Sanders, St. Albans, at the Royal Horticultural Society's meeting on December 12, 1922, attracted considerable attention, as new or rare Orchid species are rarely seen nowadays. This newcomer is of small growth and has arching spikes, on which the dainty flowers are borne in two rows. The individual blooms are of fair size for so small a plant, and they are white or cream tinted, with a reddish-coloured apex to the column. A spike of flowers bears, at first sight, some resemblance to a small inflorescence of A. citratum, but there are many differences, while the leaves are not broad and rounded, as in the last-named species.

This Angraecum has not been determined at present, and until the Kew authorities have had an opportunity of studying it the name of A. mirabile will suffice to distinguish it. The speciment is now in the collection of H. T. Pitt, Esq., Stamford Hill, which includes many uncommon and interesting Orchids.

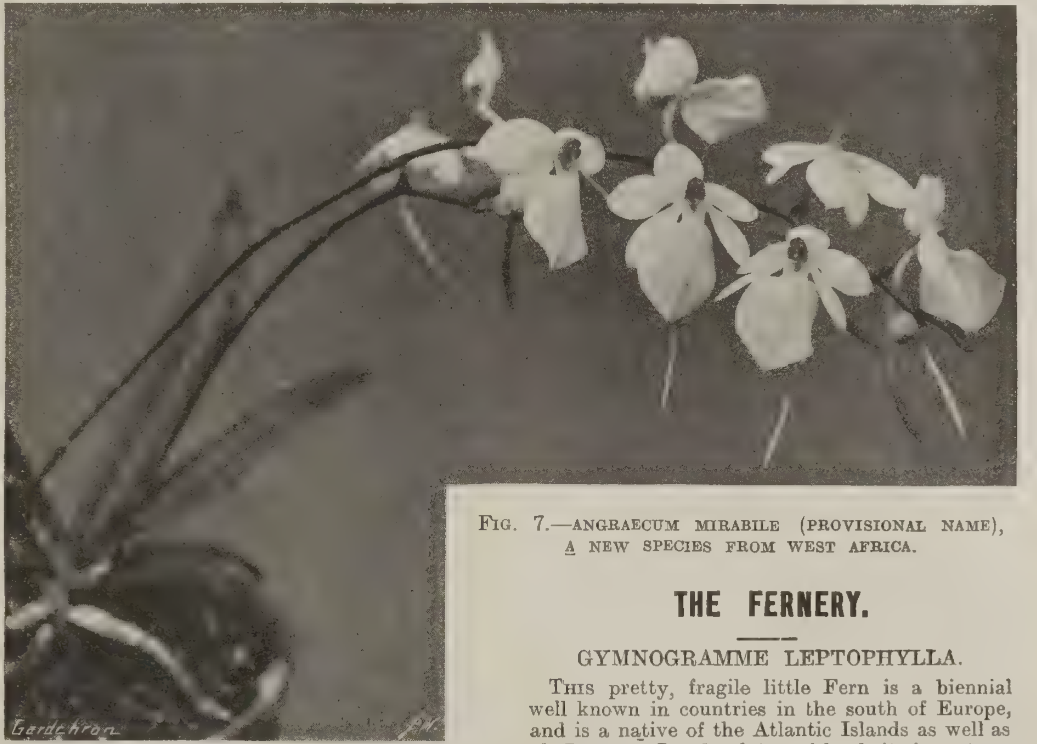

FIG. 7.—ANGRAECUM MIRABILE (PROVISIONAL NAME), A NEW SPECIES FROM WEST AFRICA.

Angraecum mirabile (Fig. 7) was sent to Messrs. Sanders by Mr. C. N. Lankester in 1921 from the West Coast of Africa, together with a Polystachya with small lilac-coloured flowers, Eulophia lurida and one or two other Angraecums. Mr. Lankester was impressed by the beauty of this Angraecum, and as Messrs. Sanders knew of no species in which the flowers showed such contrasting colours, they gave it the provisional name of A. mirabile. Two plants were sent by Mr. Lankester, but unfortunately only one reached St. Albans alive; this, however, has flowered, and is the one reproduced in the illustration.

CATTLEYA DOWIANA.

SOME three hundred direct crosses have been made with this grand Costa Rica Orchid, and its Colombian variety called C. Dowiana aurea, which has no botanical difference, but which in the earlier days of Orchid hybridisation raisers attempted to record under a separate name, thus introducing a difficulty in the recording of the hybrids of this section. Messrs. Sanders, in the last edition of their book on Orchid hybrids, wisely gave the name of the typical plant as that of both varieties, using, with the concurrence of the late J. Gurney Fowler, Esq., then chairman of the Orchid Committee of the Royal Horticultural Society, C. Dowiana for all forms of the species, excluding C. aurea which, with the contemporary garden name of C. gigas for C. Warscewiczii, was not admissible. It therefore appears that to follow Messrs. Sanders' lead in records subsequently published by hybridists would be the best and only reliable plan. The difference between the two forms of C. Dowiana is the somewhat softer substance of the leaves of the Costa Rica plant, induced by climatic conditions, but this character soon gets lost in hybrids. A curious difference in their native habitats is the frequent production among C. D. aurea of natural hybrid variations classed as forms of C. Hardyana, while the Costa Rica plants have given but one such—C. Dowiana Rosita, sent by the late Mr. Richard Pfau of Costa Rica in 1893, the small plants being from one specimen collected by him. It has rose-mottled petals and a large and richly coloured lip, and Mr. Pfau, who collected it, and knew the Costa Rica Orchid flora perfectly, was quite at a loss to account for its colour, as there was no species near it in its habitat to admit of hybridisation. He favoured the idea that it was an abnormal floral variation. *J. O'B.*

THE FERNERY.

GYMNOGRAMME LEPTOPHYLLA.

THIS pretty, fragile little Fern is a biennial well known in countries in the south of Europe, and is a native of the Atlantic Islands as well as of Jersey. In the latter island it is not an uncommon plant on grassy hedge-banks, and by the side of rivulets.

The common name of this Fern is Annual Maidenhair, from its general resemblance to some of the Adiantums.

For some years past its growth in Jersey has led some botanists to enumerate it among British Ferns, and it has been stated, on good authority, that it grows in some spots of the United Kingdom; the locality, however, is not revealed, doubtless from the apprehension that some botanists might visit the spot and entirely eradicate the plants.

It requires a clay soil, a very damp and densely sheltered situation, and generally a large quantity of Asplenium lanceolatum is found growing near by.

When cultivated, this is indeed a very pretty Fern. At the end of the summer its fronds arise from spores sown in the spring and are very small, but early the following year some taller fronds gradually develop, and these when fully grown are 3 inches to 4 inches high, and extremely delicate in texture.

They are thrice pinnate, and the end pinnules, bluntly wedge-shaped, or rounded, are three-lobed, the lobes terminating with two blunt teeth.

This Fern needs to be grown in deep shadow where the atmosphere is very moist. *W. Miller, Mill House, Warley, Essex.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Watering.—During the recent wet, sunless weather the watering of Orchids has called for special care. Too much water at the roots not only does the plant much harm, but spoils the compost, and with it the roots. The greatest responsibility rests on those who are entrusted with the watering of valuable plants. The cause and effect of too much water is the same as too little, one resulting in the decay of the roots, the other causing them to shrivel and die, the loss from either cause being extremely harmful. Should there be any doubts as to a plant requiring water, pass it over until thoroughly convinced it requires it. Plants differ very much, even of the same species, in the amount of moisture they are capable of assimilating, and the grower should use his discretion as to whether water is required or not. Again, at this season certain plants of different species are at rest; some of these will require water at the roots from time to time, whilst others may be kept quite dry, but in no case should any plant be allowed to shrivel. The condition of the compost in which the plant is growing will have some effect on the quantity of water required, as some composts retain moisture longer than others; again, the house may be either a dry or damp one, and this must be taken into account. At this season it is wise to err on the side of too little moisture. The great thing to prevent at all times is a saturated compost and atmosphere, as many so-called plant diseases are attributable to faulty watering and a cold, wet atmosphere. A safe rule is to keep the plants on the dry side until growth or root action commences, trusting principally to the humidity in the atmosphere to bring them safely through the winter. These remarks are chiefly applicable to Orchids with pseudo-bulbs which store up sufficient food for them during their resting period. Plants without pseudo-bulbs need watering whenever the roots become dry. Those plants that are in full growth should have sufficient water applied to them to enable them to form strong growth. During severe weather, when much fire heat is necessary to maintain the temperatures, care should be taken that plants near the hot-water pipes do not suffer from severe dryness. Too much care cannot be taken in making the conditions and surroundings of the plants to their liking, especially during the winter months. In applying water always saturate the compost.

THE HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Pruning.—Contrary to our usual practice, we made the summer and winter pruning practically one operation, leaving only the pruning of doubtful shoots and leaders and spur reduction until the winter; the work is now completed. Wounds and cuts on all wood made previous to last season should be dressed with tar or foresters' styptic. This is especially necessary in the case of trees subject to silver leaf disease or canker. Large wounds from broken or dismembered limbs should be cut level with the main branches. The use of a chisel will be found necessary in awkward positions. Stone fruits are particularly liable to develop coarse wood, too often through a loose rooting medium. Instead of wood suppression it will be found more advantageous to lift and replant the trees.

Bush Fruits.—In pruning bush fruits it is very important that shoots to be retained should have sufficient room and light. To obtain good results new growths should be encouraged to develop. In the case of Red Currants and Gooseberries, keep the main stem a suitable height, sacrificing, if necessary, the lower branches. The method of growing the main branches of Red Currants from the base has the advantage, in exposed districts, of lessening damage by the wind. The main principle in pruning fruit generally should be to keep the tree or bush furnished with young, vigorous growths. In dealing with older bushes a medium course may be adopted by which a certain quantity of old, spur-producing wood is retained, while encouraging growth from those that have been cut back. Wood that has been allowed to become stunted, especially on Red Currants, produces large quantities of racemes, with small berries. The importance of summer pruning bush fruit is often overlooked. Where not already done, bush fruits should be mulched with rich farmyard manure.

Wall Trees.—Proceed with the training and nailing of wall trees. Peaches and Nectarines should not be allowed to develop long, thick, useless wood. Sufficient space should be allowed for training in the young shoots, which should never be cramped for space. Mal-nutrition is sometimes mistaken for silver leaf; suspected trees should, however, be watched. Should the winter form of silver leaf disease develop at the base of trees, such trees should be destroyed. These, and a layer of at least two inches of surface soil round the tree should be removed and burnt.

Strawberries.—Young plants that have become loosened by frost should be made firm in the soil. If not mulched with manure the surface around the plants should be cleared of weeds, and hoed on favourable occasions.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Isoloma hirsutum.—This is a very useful plant, and by growing successional batches it may be had in flower all the year round. Good plants are quickly obtained by inserting five or six cuttings in a sixty sized pot. When rooted, the cuttings should be potted on intact. Plants rooted in this way last autumn are now ready for re-potting. This plant may also be increased by means of its scaly rhizomes. It grows well in a house having an intermediate temperature; during the summer, when in flower, it will give a bright display for a long time in the cool greenhouse.

Tuberous-rooted Begonias.—Seed of tuberous-rooted Begonias should be sown now, and the seedlings, if well grown, will flower during the autumn, making a succession to the plants grown from dry tubers. The seed pans should be well drained and filled with light, rich soil, which should be watered with a fine rose can some hours before sowing. The fine seed should be placed on the surface, afterwards covering the pans with a piece of glass until germination takes place. If water is necessary, stand the pans in a vessel of water and thus prevent disturbance of the surface.

Grevillea robusta and Jacaranda ovalifolia.—These elegant foliage plants are very popular for decorative work, and may now be sown. Grevillea seeds often fail to germinate successfully if they are sown in the ordinary way; being thin and flat they are apt to rot. Successful germination is generally assured if the seeds are placed on edge in the compost.

Hippeastrums. — A number of bulbs of Amaryllis, according to requirements, should be started in a warm-house. For this earliest batch select plants that were started early last year, as they naturally finished their growth early, and should respond to forcing more readily than later plants. Plants should also be selected that have plenty of active roots and do not require repotting. After thoroughly soaking the roots with water turn them out of the pots and correct the drainage, if necessary. The plants should also be examined for mealy bug, which is apt to prove troublesome. Some of the top soil should be removed, and rich compost, to which fine bone meal has been added at the rate of a 6-inch potful to every bushel of soil, substituted. The pots should then be plunged to the rim in a bed of fibre, over plenty of bottom heat.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Sites for Planting.—In many gardens all planting was finished by Christmas, but where the work has been delayed it should be continued in the New Year when the weather and condition of the soil are favourable. Should it happen, as it does occasionally, that the weather of winter is too inclement to undertake planting for a time, it will greatly facilitate the work—when it can be done—to have the station prepared in advance for trees or flowers. Discretion should be exercised in getting the sites ready, as there is no need to loosen the subsoil unduly where strong-growing trees or shrubs are to be planted, but the chosen subjects will require all the help good tillage can give. The nature of the soil should also be studied—adding manure here, leaf-mould there, as the need may be, and dispensing with the use of either where the condition of the ground suggests high fertility. If in preparing any position for planting stagnant water is noticed, means must be adopted to ensure a free passage for moisture by some form of drainage best suited to the surroundings.

Protecting Plants.—Little of this work has been necessary up to the moment of writing; but it will be advisable to have the protective material in readiness so that it can be quickly adjusted should the occasion arise. Choice shrubs growing in the open are best protected by placing tall stakes gipsy-tent fashion around them, so that some covering material may be hung over them in severe weather, and easily taken off when not required. Where tender subjects are growing against walls or fences, and are still thought unsafe, a few evergreen branches interlaced between a few pieces of string stretched across the plant will, in most cases, be sufficient. Newly-planted Roses should have light soil placed around their bases so as to form small mounds, while straw or Bracken Fern may be strewn among the tops of the plants in very cold districts. Established Tea Roses also may call for a little extra care in extremely cold weather.

Flower Beds.—Flower beds and borders that have not been planted with spring-flowering plants should be dug deeply after having applied such enriching materials as may have been considered necessary. The ground where Sweet Peas are intended to be grown either in rows or clumps should also be got in readiness—in fact, this work should have precedence over that required for the usual summer beds, because the seeds or seedlings of this popular annual will be ready for their places first. Some manurial assistance is necessary for Sweet Peas if they are to be expected to continue blooming all the season, and where farm-yard manure is not available a good substitute will be found in the lawn grass-mowings and fallen tree leaves of last season mixed together. These materials should be placed well below the surface.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Early Peaches and Nectarines.—Take advantage when the days are bright and sunny to thoroughly spray the trees, as it is not desirable to spray them during dull, cold weather, for an excess of moisture during the early stage of growth will unduly hasten the growth of the young shoots. In forcing Peaches and Nectarines the most important point is to keep the house comparatively cool up to the flowering period, as this will ensure an even balance of growth between flower-bud and shoot. Plenty of moisture should be maintained in the atmosphere and air should be admitted freely whenever the weather is favourable. Use a minimum amount of fire heat, closing the house fairly early in the day to conserve the sun-heat. It is far better to allow the temperature to drop a few degrees than to make the pipes very hot in an attempt to keep up the temperature; about 45° at night and 50° without sun-heat through the day will suffice to commence with. See that the border is not dry near the pipes, and, if necessary, water it freely with tepid water.

Pot Vines.—Pot vines which were started with bottom heat in November may now have the laterals tied down and stopped. The earliest varieties will be coming into flower, at which stage afford a temperature of 60° to 65° at night, and by day from 70° to 75°, with a further increase up to 80° when the sun shines. Maintain a moderate amount of atmospheric moisture by damping the paths and other available spaces. Add fresh fermenting material if the hotbed shows signs of losing heat. A little air should be admitted through the top ventilators when the weather is favourable, taking care to prevent cold draughts. Watering should receive careful attention, and, as the roots are active, feeding may be resorted to, very mildly at first. Pot Vines introduced at a later period will soon require disbudding. The strongest and best-placed shoots should be selected, leaving the laterals 18 inches to 20 inches apart on either side. The night temperature may range from 55° to 60°, with a rise of 10° during the day; a slightly lower temperature is more desirable during severe weather than overheating the pipes to obtain a fixed degree of warmth. For watering the vines use tepid water only.

Early Vinery.—Vines started in the latter part of November or early part of December require disbudding. It is advisable to allow two of the strongest growths on each spur to remain until an inflorescence is seen, and then remove the weaker one. Early forced vines are at times somewhat erratic in showing bunches, and by reducing the laterals to one at too early a stage the retained shoot may fail to fruit. The atmospheric conditions should be regulated according to the state of the weather; undue forcing is not advisable, as a very high temperature with excessive moisture would cause the growth to be weak and spindly and render the foliage liable to an early attack of red spider.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Hot-beds.—Plenty of leaves being available, hot-beds should now be made with them and long stable litter, using two parts of the former to one of the latter. Mix the leaves and dung and make the bed firm to conserve as much heat as possible. Allow the beds a few days to settle, and then place the frames thereon. The hot-bed should be two feet wider all round than the frames to permit of adding fresh material as linings. Plunge a stick into the centre of the bed and examine it every day; when the heat is on the decline the frames may be filled with prepared soil. The old compost in which Chrysanthemums and other plants have been grown is suitable for the purpose; it should be sifted through a half-inch sieve and mixed with its bulk of loam and leaf-mould.

Work during Inclement Weather.—During wet weather take advantage of the opportunity to sharpen Pea and Bean sticks, make labels, and clean out sheds and storehouses. Examine the stocks of Potatos, removing all bad and faulty tubers. In the event of frost, wheel manure to vacant land intended to be dug or trenched; a certain portion of the vegetable garden should be trenched every winter. Deeply-dug ground is especially necessary for such crops as Onions, Cauliflowers, Peas and Beans. All rubbish should be burnt, the ashes spread on the ground, and dug in, as they form a valuable fertiliser.

Plants in Frames.—Autumn-sown Cauliflowers that are being wintered in frames should be examined occasionally, and leaves that have damped off removed, and the surface soil stirred lightly with a stick. Remove the lights on mild days, but cover the frame well at night in the event of severe frost. Do not, however, coddle the plants on any account, or they will become weak and spindly. Endives and Lettuces should also be kept clean, and sufficient of the former tied up to blanch as required. Keep a close watch for mice or rats, as they will cause much damage amongst young plants, especially Cauliflowers.

PROLIFICATION OF PEAR.

THE illustration in Fig 8, shows a remarkable example of prolification of Pear, the branch growing from the apex of the fruit being a normal one in every respect, and measuring one and a half foot in length. The buds and leaves were quite normal, the foliage, as will be seen on reference to the illustration, being as large and well developed as that on the shoot below the fruit. The tree on which the remarkable abnormality occurred was a maiden Pear of the variety Marguerite Marillat, in the nursery of Mr. J. C. Allgrove, Middle Green, Langley, Slough. The stock was budded in August, 1921. In the following spring the bud developed a growth shoot and a flower bud; the latter expanded, set, and a fruit formed. The fruit swelled, and at the end of May a shoot growth developed from the eye, and continued to grow strongly throughout the whole of last summer By the end of September this proliferous shoot was 18 inches in length. The fruit also continued to swell until it was the size of a hen's egg. The third week in October the fruit began to soften and gradually wasted until only the loose skin hung round the base of the shoot. The stalk of the fruit gradually withered and died, and the proliferous growth, having nothing to support or connect it with the stock, also died. The other growth from the original bud remains healthy and has grown about eight inches long.

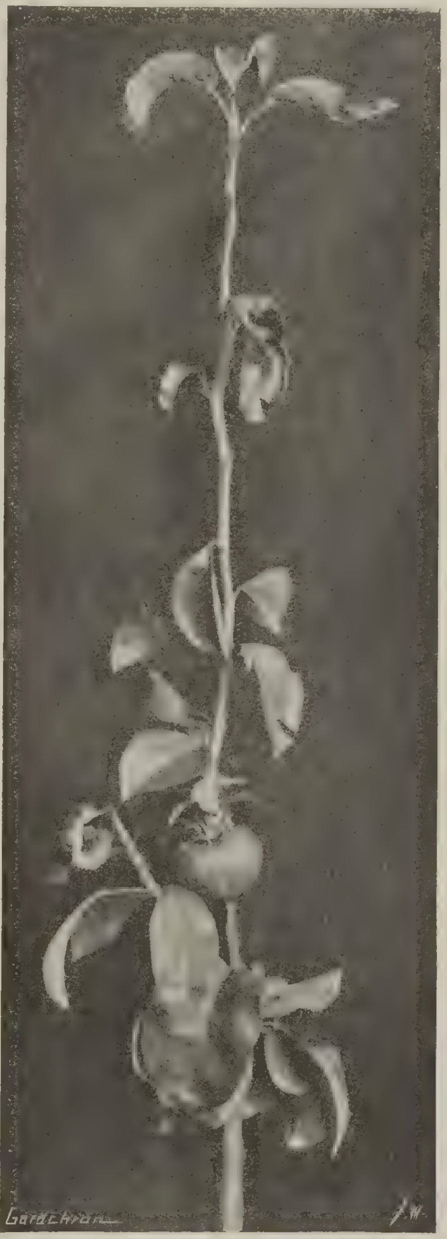

FIG. 8.—PROLIFICATION OF PEAR.

Masters, in *Vegetable Teratology*, refers to prolification in Pears as follows: "In some of the instances of so-called proliferous Pears the carpels would seem to be entirely absent, and the dilated portion of the axis to be alone repeated. Thus, the axis dilates to form the lower fruit without any true carpels being produced, but at its summit a whorl of leaves (sepals) is formed; about these another swelling of the axis takes place also without the formation of carpels, and this, it may be, is terminated in its turn by a branch producing leaves. In these cases there is no true prolification, but simply an extension of the axis." In Mr. Allgrove's example there were no rudimentary leaves on the fruit and the branch grew direct from the eye.

NOTES FROM WISLEY.

THE greatly increased cost of heating greenhouses has had the result of stimulating the cultivation of plants requiring little or no heat to flower early. Continuous trials are held at Wisley for the purpose of acquiring further information in this respect, and to discover the most suitable plants. Last year Antirrhinums were grown, and made a good show. Recently a house has been filled with Salpiglossis which are expected to flower about April, just sufficient heat being given to keep out the frost.

Many varieties of perpetual-flowering Carnations are now on trial, and among those flowering well at Christmas, Benora, a white and red fancy, was conspicuous. White Benora was also good, but almost all the flowers show specks of red. Among the shades akin to claret, Mrs. K. Kyffin has well-formed flowers and noticeably erect stems. Perpetual Malmaisons are in good form, several varieties under trial possessing long stems and consequent freedom from the defects of dumpiness.

In the Alpine house some members of the Primrose family are flowering freely, including Primula × Juliana, with its large purple flowers, and Soldanella montana. A pan of the latter in full bloom makes a delightful picture. The petals are almost a violet colour when the buds burst, but, as the stems elongate and carry up the feathery bells, so the colour pales. This species generally precedes by about three weeks S. alpina, which is also to be seen in the Alpine house. Among the Saxifrages, the grey rosettes of S. Griesbachii are beginning to throw up their flowering shoots, exposing crimson hairs, while some of the Burseriana group are already in bloom.

On the rock garden there is little to be seen, as is usual at this time of the year, and although occasional blooms are to be seen on Rosemary, Primula Juliae, and a few other plants, the only one flowering whole-heartedly is Primula Winteri. This is now comparatively well known, and a colony of it has been established for some time at Wisley.

The present barrenness of the portion of the wild garden devoted to Lilies and Primulas is relieved by bold groups of New Zealand Flax (Phormium tenax) and some of the light and feathery foliaged Bamboos which contrast favourably with their sombre surroundings. The chief disadvantage of these hardy Bamboos is their habit of spreading into an unshapely mass which presents a ragged and untidy appearance in May and June. The silver stems of the Birches and the warm red trunk of Arbutus Menziesii gain in interest by the absence of other attractions.

In other parts of the wild garden there is every sign of activity, and several shrubs are on the point of flowering, such as Pieris (Andromeda) japonica, which even in bud is a most charming object. Where it grows well, as at Wisley, it is in many ways superior to its relative P. floribunda. The inflorescence is longer and pendulous, and the foliage far more attractive. A variegated form of this plant, bearing silver-margined leaves, makes a handsome shrub, but appears to be shy of flowering. *J. E. G. White.*

INDOOR PLANTS.

GREENHOUSE FLOWERING PLANTS.

Bouvardias constitute a most useful group of plants for making the greenhouse or conservatory gay during the autumn and winter. There is a charm and daintiness in the cluster of Jasmine-like blooms, and the flowers are favourites for use as buttonholes, the making of wreaths, or filling small vases. The plants may be had in flower up to the end of the year. After flowering, they should be allowed to rest for a period, in a house having a temperature of about 45° to 50°, by giving them only sufficient water to keep them alive. In the middle of February they should be cut back, cleaned carefully, and placed in a warm, moist house having a temperature of 55° to 60°. They should be syringed lightly with clear water two or three times during the day, when the weather is favourable, to start them into new growth to provide cuttings. Suitable shoots will soon develop, and when they are sufficiently strong they should be inserted, several together, in a 3 inch or 4 inch pot containing sandy soil. Place them in a moderate bottom heat under a bell glass or hand light, and keep the atmosphere moist. Roots will soon appear, and, when the plants are well rooted, they should be potted singly in small pots. Accustom them gradually to a cooler temperature, and keep them shaded from the sun to prevent flagging. Prick out the growing points occasionally to obtain sturdy plants. Repot them, as necessary, in a mixture of light, turfy loam, fibrous peat, or leaf-mould and sand; do not over-pot them. During the summer they may be grown in a frame, pit, or an ordinary greenhouse with plenty of atmospheric moisture. They will succeed well planted out-of-doors in a warm, sheltered situation, but should be taken up and potted early in the autumn. Fumigate occasionally the house in which they are grown, to prevent green fly or thrip from attacking them, which, if allowed to spread, would be fatal to their growth. The following are a few of the best species and varieties: B. elegans, scarlet, a fine truss; Priory Beauty, delicate light rose; King of Scarlets; Mrs. Robert Green, delicate light pink; Bridal Wreath, white; Dazzler, rich scarlet; Vreelandii, pure white; Bridesmaid, double pink flowers; President Cleveland, vivid scarlet; candidissima, white, with a very compact truss; Alfred Neuner, pure white, double flowers; Triomphe de Nancy, bright orange red, also a double-flowered variety; The Bride, white, tinted with blush, one of the best for use in bouquets; and jasminiodes, white, a free grower.

The Daphnes include very sweet-scented, cool greenhouse plants, and are comparatively hardy planted out in the South and West of England in warm, sheltered situations, protected by a slight covering during severe weather. The perfume of the flowers is delicious. They make good, bushy plants with bright, evergreen foliage and small, compact trusses of flower which are produced freely in February and March. The two best Daphnes for greenhouse culture are D. indica alba, white, and D. indica rubra, rosy pink. Both are very fragrant. These Daphnes may be grown in a cold frame throughout the summer and autumn. There are several other kinds suitable for greenhouse cultivation, but those named are the best. They do not root freely from cuttings, but are generally grafted on D. Laureola (Spurge Laurel). Well-ripened wood should be selected as scions in March or April, and the grafted plants should be placed in a close pit or frame and kept shaded from the sun until the stock and scion have united. D. Laureola for use as stocks is generally raised from seed.

Eupatoriums include white, scented plants invaluable for winter decorative work when other flowers are scarce. They do not require a high temperature, and will flower freely in 5 inch to 7 inch pots. If grown in a very close, warm house, the shoots will develop weakly and the flower be small. They are best grown in a cold frame with plenty of air in summer to make them strong and sturdy. After flowering, the plants should be cut back and started into growth in slight warmth to procure cuttings. The latter will root freely in a hand-light or frame over slight bottom heat. When rooted, pot and place the plants in a warm house or frame near the glass, and do not allow them to flag. When established, give them cool treatment. Pinch the leading shoots from time to time to make them bushy. The most useful species are E. vernale (syn. grandiflorum), a dwarf, compact, free-flowering plant with dark green foliage; the flowers are blush, changing to white, and last for several weeks; E. Weinmannianum, a free-flowering variety with fragrant, white blossoms. The plant grows to a height of 2 feet, and is most useful for conservatory or other decoration. E. petiolare, E. odoratum, and E. riparium are also useful garden species and of easy culture. The most suitable soil is rich, turfy loam mixed with a little peat or leaf-mould and lightened with silver sand. Do not allow the roots to get dry, otherwise the foliage will turn yellow and drop. When the flower buds show, a little liquid manure is beneficial to the plants.

Lantanas are charming, free-flowering evergreen shrubs and worthy of special attention by growers. Not only are they invaluable as pot plants for the greenhouse on account of their compact habit and freedom of flowering, but they may be utilised for summer bedding, commencing to flower early in the season and continuing in bloom until late in the autumn. They are pretty perennials, with flowers of a distinct range of colours, including orange red, salmon, rose, yellow, and reddish crimson, also white. There are numbers of named varieties of dwarf habit. Amongst the best are Drap d'Or, a charming plant, most useful for edging, of dwarf, compact habit and with bright yellow flowers; Raphael, yellow and maroon; odorata, white; Chelsea Gem, rich maroon; Magenta King, bright purple scarlet; Eclat, rich reddish crimson; and salviaefolia (syn. delicatissima). The last is distinct from any other, and most effective when grown as a bush 2 feet to 3 feet high for pot culture, as a summer bedding plant for large beds, or for associating with other miscellaneous plants, remaining continually in flower until late in the autumn. In recent years many choice hybrids have been raised with large heads of flowers of a beautiful range of colour. Seed sown early in the spring will produce plants that will flower during the summer and autumn. *John Heal, V.M.H.*

STREPTOCARPUS.

The various species from which the present-day race of Streptocarpus originated are seldon seen in cultivation except in botanic gardens. During recent years many fine strains of Streptocarpus have been placed on the market, there being a marked increase in the size of the flowers, also a decided improvement in the rose and red-coloured varieties. Considering how beautiful they are, it is surprising Streptocarpuses are not more generally cultivated. If seed is sown now, the resulting plants will make useful specimens for autumn flowering. They grow best in a light, rich compost. The fine seeds should be sown on the surface of seed pots that were well watered a few hours before sowing. The seeds should be germinated in a house having a temperature of 60° to 65°. Young plants in 60-sized pots from last year's sowing may be potted on, using good medium loam mixed with flaky leaf-mould, collected from under Oak or Beech trees; manure from a spent mushroom bed is also suitable for mixing with the soil.

The Streptocarpus is very subject to attacks of mealy bug, which must be carefully guarded against, or it will soon ruin the plants.

The caulescent species, S. Holstii, is a native of East Tropical Africa, and very different in appearance from the stemless species and varieties; so far all attempts to obtain hybrids between them have failed. This species makes a neat, compact, freely branched plant some 18 inches in height. Its small, bluish-purple flowers, with a white throat, are produced freely during the winter and spring. The plant is easily propagated by means of cuttings, and grows freely in a temperature of 60° to 65.° *C.*

NOTES FROM AUSTRALIA.

FIELD NATURALISTS' SHOW.

At this annual exhibition, held in Melbourne on October 3 last, the most comprehensive collection came from the local Botanic Gardens, where many hundreds of species of the Australian native flora find a congenial sanctuary. Although the Grevilleas are nowadays planted in most gardens and parks—the 24 inch G. dallachiana frequently being seen beneath the 100 foot G. robusta—only four species were on view. Olearia argophylla, O. pannosa, O. stellata, and O. Gunniana represented the large "Tree Daisy" family. Chorizema cordata, Tecoma australis, Chamaelaucium uncinatum, Oxylobium ellipticum, Anopterus glandulosa, Thryptomene, Boronias, Rhodanthe Manglesii, Brachysema lanceolata, Clematis aritata, Pultenaea in variety, Leschenaultia biloba, Telopeas, and Eriostemons were included in this exhibit, these being common as favoured shrubs and climbers in our gardens. Equally attractive but less known were Dianellas, Stypandra, Hypocalymma, Verticordias, Beckias, and various Acacias. Eucalyptus ficifolia, E. leucoxylon, and E. calophylla are everywhere grown in Australia, but the Pear-fruited Gum, E. pyriforme (a beautiful, crimson-flowered species), and E. preissiana (soft yellow) were novelties to most visitors. The Orchids must have numbered 60 species, mostly of Chiloglottis, Sarcochilus, Acianthus, Glossodia, Diuris, Pterostylis, and Caladenia.

GLADIOLI.

On p. 149, Vol. LXXII., *Smilax* refers to the "whiteness" of various varieties, and having grown the varieties under notice, with the exception of Perfect Peace, I would venture to disagree with him. Alice Carey, Rochester White, and Chicago White, as flowered here many years ago, were not any more white than they were pink, also they were very inferior in form and size. White Glory and Snow Glory both have well defined, bluish lines through the petals—at times the lines become a definite blotch. Mary Pickford and Fern Kyle are cream or ivory, the latter variety having a lilac line in the petals. Europa and White Giant are the whitest we have yet seen here, although L'Immaculée runs very close to Europa when flowered in cool weather. Zeppelin (Pfitzer, 1914) is my fourth choice as a white. Incontestable I bought in 1914 from a Continental nursery, but it proved to be M. M. Sully, as sent me by Messrs. Lemoine, of Nancy, two years earlier.

With regard to the awards made to Gladioli varieties by the Royal Horticultural Society, I should like to ask why some are made. I can understand a variety such as Perfect Peace receiving an award of merit, as it has a fine form, although possibly a short spike. But why should Butterboy and Snow Glory receive the same award?

In Australia, an award by the R.H.S. of England is looked upon as a proof of merit. Gladiolus Snow Glory has been widely tested locally for several seasons past, and unanimously rated as useless—"inferior to L'Immaculée," as one correspondent puts it. For monetary reasons there always will be seedling raisers who name every slight variation in their garden progeny; but we in distant parts of the Empire look to the head Horticultural Society to set their seal of approval only on introductions of undoubted merit. I have several spikes of the variety Butterfly in bloom at the time of writing, but, compared with a standard collection of primulinus varieties and hybrids from world-wide sources, it would not obtain an award as of outstanding merit.

Varieties such as Eugene Sandow, Edward VII, J. W. Kelway, Orby, Duchess of Somerset, and Rouget de L'Isle, have been introduced here through their awards from the R.H.S., and the Société Nationale d'Horticulture de France, and are properly included in our lists of highest grade Gladioli. *G. Errey, Warburton, Victoria, Australia, December* 2, 1922.

THE ALPINE GARDEN.

SYNTHYRIS.

THE species of Synthyris are little known to the average gardener, and there are even many who take special interest in alpine flowers who are unacquainted with the genus. As a rule they are attractive little plants which do not appeal to us so much on account of their showiness as for their less obtrusive charms. They are generally of easy culture, loving, however, a soil which is cool and rich and with an abundance of moisture during the spring and summer months. They dislike being parched, and full exposure to the sun does not suit them unless they have plenty of water within reach of their roots. These plants form bonny little tufts of foliage and send up pleasing spikes of flowers. They belong to the great family of Scrophulariads.

The first to be distributed through the trade in this country appears to have been Synthyris reniformis, with which the writer was delighted soon after it came into commerce in Britain. The plant was in a pot and in a frame, as being a rarity whose requirements were not well understood. It was charming, with its pretty kidney-shaped, glossy leaves and its four-inch or five-inch spikes of beautiful, small, violet-blue flowers. It has many charms, not the least of which are the scallopings of the thick and varnished leaves. One of its merits is that of coming very early into bloom. According to some authors it flowers in April, but I have had it in flower in February in mild seasons.

The next to come under my notice was S. pinnatifida, but this proved a disappointing plant, inasmuch as it does not compare favourably with S. reniformis, which is, undoubtedly, the best of all. S. pinnatifida has taller spikes, with flowers of a pretty shade of blue, and the leaves are more deeply cut than those of S. reniformis. It seems to like similar soil. This species comes from Wyoming and Idaho, and blooms about the same time as S. reniformis.

S. plantaginea, which comes near S. pinnatifida, is rather more tardy in blooming and its pleasing flowers have a tinge of pink in blue ground. S. alpina I have not grown. It is a neat little plant with rather rounded, scalloped leaves and rich blue flowers. It hails from the same region as S. pinnatifida.

Another species which is recorded, called S. Bullii, is said to be dull yellow and a poor plant. I should like to obtain the white variety of S. reniformis, which is said to exist, but I am not aware if it is in commerce.

DOUGLASIA VITALIANA.

THE possession of several aliases does not tend to increase the favour shown to any plant. This little beauty is still frequently known as Androsace Vitaliana, under which name it first came to the writer many years ago. It has also been called Gregoria and Dionysia, as well as Aretia, under which it is occasionally met with still. Its botanical relationship to all these genera is so close that it is little wonder that confusion has arisen. Fortunately its beauty is sufficient to secure admission into the choicest and most exclusive of alpine collections, where, when it flourishes, it is an object of admiration to everyone. Douglasia Vitaliana forms a low carpet of small Juniper-like-arranged, greyish eaves, and from among these arise the exquisite ittle yellow flowers, almost citron in their hue. It meets the desire of those who wish for a yellow Androsace, for such it is in all but name, and t is a good consort to these favourites in the best places in the rock garden. The plant does not always flower successfully; it dislikes disturbance and is best left alone, even if it is at first a disappointment, until it has become established. One point should be considered, i.e., that it is not a lime or chalk lover. It favours, and indeed, only occupies the non-calcareous rocks of its native Swiss Alps. A soil f loam and sand with some grit or one of peat and loam, or loam and leaf-soil, will suit Douglasia Vitaliana, but it should be made firm; while in the moraine it does well, provided the oil is not too dry in summer. *S. Arnott.*

HARDY FLOWER BORDER.

RUDBECKIA PINNATA.

MANY of the old border flowers are still among the most desirable, even though certain gardeners may overlook their merits. For instance, in how many gardens can now be seen the slender and beautiful Rudbeckia pinnata? This plant was introduced well over a hundred years ago, but many young gardeners have never seen it. It is just one of scores of good old plants that have been forgotten by the present race of gardeners in Great Britain.

Rudbeckia pinnata (Fig. 9) is a free-flowering and graceful Coneflower of slender habit and extremely decorative. The narrow, drooping, strap-like ray florets are of clear transparent light yellow, and the central cone is prominent and almost black. The drooping ray florets are two inches or more in length, and are much longer than the oblong disc. R. pinnata grows from three feet to five feet high, is much branched, with finely cut, pinnate leaves, and it flowers from July to September. No plant is more easily grown, and it is quite at home in a sunny border, no matter what the soil may be. Moreover, it is invaluable for cutting, as the flowers last well in water, while the floral receptacle exhales a pleasant odour.

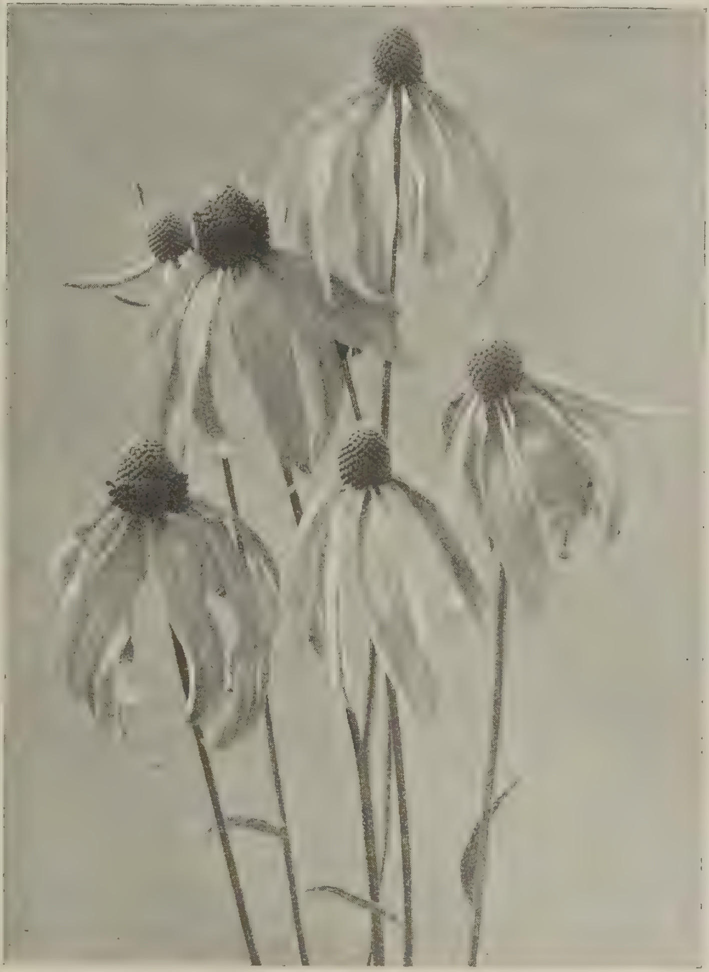

FIG. 9.—RUDBECKIA PINNATA.

Although Rudbeckias have been in cultivation for centuries, apparently the only full double-flowered form is the well-known Golden Glow, a variety of R. laciniata. Another well-known species is R. hirta, or Black-eyed Susan, which has another very appropriate popular name in Nigger-head, but it is biennial and should be raised from seed regularly. The subject of this note is a true perennial, and by some authorities is placed under the genus Lepachys. Of slender form and of luminous quality when in flower, this is just the border plant so many garden lovers require. *Herbert Cowley, Tunbridge Wells.*

TRICYRTIS HIRTA.

ONE great defect of Tricyrtis hirta, from a garden point of view, is its late flowering. With some plants this is an advantage; but, as this Tricyrtis blooms in October, and is generally damaged by frost before it has time to open its flowers, its value is sadly discounted as a garden plant. Of course, this defect is less pronounced in the milder parts of the country. The flower-buds emerge from the axils of the rough, almost corrugated dark green leaves, which clothe the rather arching stems, a foot or more in length. Then is recognised the appropriateness of the popular name of the "Toad Lily," as applied to this Japanese plant. The flowers are Lily-like in their shape, but are of a curious, unpleasing pinkish tone, spotted and freckled with purple. There is little, indeed, to redeem the plant in the eyes of those who love flowers with ordinary charm, and many of our own wildings, which are neglected because of their want of colour, have more to commend them than this native of Japan. T. macropoda has one advantage; it blooms in June and July. Those who wish to try this Tricyrtis should plant it in a warm, sunny place, and in fairly good but not excessively rich soil, so as to give it every chance of blooming ere winter sets in. Propagation may be effected by division when the plant has reached a fair size. *A.*

CAMPANULAS.

MR. W. LOGAN's interesting note on Campanulas, on p. 7, includes almost all the best garden species and varieties suitable for the border, but he omits any reference to Telham Beauty, a variety of C. persicifolia, and one of the most glorious of all blue border flowers. This beautiful Campanula is worthy of inclusion in a list of the best dozen blue hardy border flowers. *T.*

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. VI.—BACK TO MU-LI.

ON May 18 we left Mu-li, following the Litang river due north, our objective being War-chen, where the king was in residence. On our left towered the splintered spires of Mu-li cliff, here facing north-east, thinly covered with forest, which striped the gullies. Opposite us, across the river, was a range of limestone peaks with rounded summits, rather bare above, but Pine-clad below.

Our road, between a thousand and fifteen hundred feet above the river, lay through a thick growth of shrubs, but here and there we crossed a deep gulley filled with trees—Alder, Lime, and others—which, however, only served to emphasise the absence of forest from the river gorge.

On the second day we descended to the river and crossed to the left bank by a very rickety-looking bridge. Now we entered a deep gorge, through which the river crashed in a welter of foam. On the wet cliffs was a pretty combination of Ivy and Maidenhair Fern, also a dull form of Campanula colorata. Few of the trees and shrubs, amongst which I noticed species of Bauhinia and other Leguminosae, twining Asclepiadaceae, Jasmine, Rose, Buddleia, Berberis, Ailanthus, etc., were in flower. The vegetation was very similar to that of other arid river gorges in this part of the country. In flower were Sophora viciifolia and a curious Arisaema.

On May 20 we climbed some 3,000 feet out of the river gorge to the monastery of War-chen, perched high up on the flank of the range, but concealed in a fold. Up here a fine, Lavender-blue, dwarf Rhododendron was a mass of bloom, and yellow Paeonies abounded. The open slopes, however, were covered with scrub Oak mixed with dwarf Rhododendron (purple-flowered intricatum), and then Pine woods; we were still, at 10,000 feet, below the normal forest line, though trees—Poplar, Maple, Oak, etc.—filled the deeper gullies. It may be noted that in this region there is no forest in which Conifers do not predominate, in striking contrast to the ranges west of the Yang-tze, where there are extensive belts of forest in which Conifers are either subordinate or entirely lacking.

Rhododendron yunnanense and R. decorum were still in flower, and the grassy slopes were dotted with purple Roscoea. Bushes of wine-red Paeony also occurred, but during two days spent here we found little of interest.

On May 23 we set out for Ku-lu, which lies to the south-east, on the other side of the Yalung river divide. Our road lay up a narrow limestone gorge, the cliffs of which were covered with purple-flowered Intricatum Rhododendron, a magnificent sight in full bloom. There are really two forms of this species, which is easily recognised by its polished leaves and long style. In the sub-alpine form, the species is a loosely branched shrublet, studded over with large, brilliant flowers. The alpine form is more compact, with smaller leaves.

FIG. 10.—RUBUS BIFLORUS VAR. QUINQUEFLORUS. R.H.S. AWARD OF GARDEN MERIT (SEE P. 23).

Another Rhododendron which was now at its best was a pink-flowered form of R. decorum, or more probably a distinct species allied to the latter. This, a shrub of 6 ft. to 10 ft., was crammed with blossom, and in the neighbourhood of 12,000 feet altitude was a fine spectacle. Down in the bed of the stream a Muscarioid Primula, of which I secured seed last year (K.W. 4436; it has germinated well, so we shall soon know what it is), was coming up, and in the forest P. Cockburniana was already in flower.

Crossing the pass over the Litang-Yalung divide, we found the moorland a mosaic of colour, where half a dozen dwarf Rhododendrons were in bloom, including "Lemon Dwarf" (K.W. 4023), which is far more abundant on the east side of the Litang river than it is on the west. Other plants in flower were Meconopsis integrifolia, Incarvillea grandiflora, Primula sinopurpurea—a clumsy-looking plant, this—species of Pedicularis, etc.

On May 25 we began to descend towards the Yalung river, and as we got lower down Primulas appeared in the streams, P. vittata and P. pseudo-sikkimensis, always inseparable, just coming into flower; P. Poissonii, also, and with them P. Wardii, with its curiously attached bracts. Better than all these was a Capitata Primula, which I had not met last year. The flowers were long over, so I collected seed; but next day, along the edge of a wood, I found plants in flower. Not only had I not found this species in 1921, I had not found any Capitata Primula in the Mu-li country; so the discovery was all the more pleasing on that account.

We had to cross a high ridge before we reached Ku-lu. There was a beautiful Violet-flowered form of Primula pulchella on the open, sunny downs; and a combination of Rose-pink Rhododendron racemosum with "Lemon Dwarf" was one of those bold colour schemes which Nature can do with impunity, but which man dare not copy. The Intricatum Rhododendrons were all in full bloom now, and a wonderful mosaic of purple, lavender, and yellow covered the slopes. Another pleasing colour scheme was the combination of sulphur-yellow Roscoea with Primula pulchella.

On May 26 we came in sight of the monastery of Ku-lu, and descended to the high valley in which it is situated. It is much higher than Mu-li—about 12,000 feet, shut in by wooded hills, where, however, few species of trees are to be seen. The forest is composed almost entirely of Picea and Oak, with a few bush Rhododendrons of the Campylocarpum group, Pyrus and Bamboo soon giving place to Pine forest as one descends.

It was still too early in the year for flowers in large numbers—the bulk of them do not open before the first rains. Cypripedium tibeticum was in flower, and another curious little pink and white species was growing on the dry, sunny slopes down in the Oak forest; but this, too, I had found at Mu-li last year. By far the best plant I found was a Primula of the lichiangensis type, with rich crimson flowers, the deepest crimson imaginable. The calyx and foliage are quite different to those of true P. lichiangensis, even if the flower colour were not so distinct. I should like to have gathered seed of this woodland plant—it grew in the Oak forest at about 11,000 feet—but it was only just coming into flower, and last year's seeds were all gone. Someone else will have the pleasure of introducing it.

This plant was discovered on May 29, the day we started back to Mu-li, having spent two days at Ku-lu. There seemed to be an excess of yellow on the open alpine pastures now—Roscoea, dwarf Lloydia, Stellera, Viola Delavayi, a bright Crucifer, Rhododendron, Ranunculus, and others, all yellow, from lemon to orange.

Passing through a gorge, where the brawling torrent was shaded by truly magnificent Oak and Pseudo-tsuga trees, we climbed up to the secluded monastery of Ko-pa-ten, a small but picturesque place hidden amongst the trees. This monastery is under a cloud, and not much used, owing to a sordid scandal connected with it.

On May 31 we ascended to the summit of the ridge, and, crossing the pass, 11,000 feet, saw the Litang river below us once more. Cornus capitata, conspicuous by its large, cream-coloured bracts, grew in the thickets here, in the midst of Pine forest; and in a bog I came across a small species of Strobilanthes new to me. What was more surprising was to see several trees of a species of Acacia familiar on the Ta-li plain, and thence right away westwards to the North-East Frontier of Burma.

We camped close to the bridge that night, in view of Mu-li cliff and monastery; and on June 1, crossing the river and, climbing the 2,000 feet of patchily cultivated slope, reached our starting point after an absence of a fortnight. On the whole, the result had not been very satisfactory, though we had found two Primulas and several Rhododendrons which were new to me. On the other hand, I had failed to locate the expected snow peak of Ku-lu. *F. Kingdon Ward.*

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* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15, July 22, August 5, August 26, September 9, September 23. October 7, October 21, November 4, November 18, December 2, December 16, and December 30, 1922.

PLANTS OF SPECIAL GARDEN MERIT.

MR. F. J. CHITTENDEN, Director of the R.H.S. Gardens, Wisley, sends the following descriptions of the plants which received the Royal Horticultural Society's Award of Garden Merit in November, 1922.

STRANVAESIA UNDULATA.

Evergreen shrubs are always valuable in the garden, and when to the winter green of their foliage they add pleasant flowers in summer, bright red fruits in autumn, and brilliant dying tints to their leaves, they are particularly valuable. All this one finds in Stranvaesia undulata. Its long-oval, glossy green leaves, sometimes but not always undulate at the margins, turn bright red before they fall, but not all at once. Here and there on the bush are a few red among the green almost the year round. It bears groups of small white flowers at the tips of the shoots in June, and though these are rather fleeting they help to keep the shrub border bright when the more commonly grown shrubs are passing. And in autumn their place is taken by brilliant groups of red Haw-like fruits, fortunately not so loved of birds as so many of our autumn fruits are that they vanish in a day just as or even before they are ripe. The bush is of rather open habit, so that its characters are easily seen, and it grows to a height of 6 or 8 feet, and possibly eventually even taller.

Like so many of our beautiful shrubs, this is a native of Western China, whence it was first introduced by Mr. E. H. Wilson, who sent seed in 1900 to Messrs. Veitch. It appears to present no difficulty in cultivation; it seems not at all particular as to soil so long as the drainage is good; it is perfectly hardy, having withstood unharmed the severe winter of 1917 at Wisley; and is altogether a great acquisition among hardy evergreens. S. undulata was figured in the *Botanical Magazine* at t. 8418. Award granted on November 27, 1922.

PYRACANTHA GIBBSII.

No trees or shrubs have more justified in 1922 their inclusion among garden plants than the well-known coral red Pyracantha coccinea (or Crataegus Pyracantha as it is still often called) and its beautiful variety Lalandei with larger, more orange fruits. That came to us from Asia Minor and South Europe, but China has much more recently yielded some beautiful shrubs apparently nearly related to the Nepalese representative of the genus, P. crenulata, but sufficiently distinct to warrant separate names, at any rate in gardens. It is difficult to say which is the most beautiful of these new-comers, and not all are yet widely known, but among them P. Gibbsii (Fig. 11) will certainly hold its own. Quick-growing to about 10 feet in height, with glossy dark evergreen foliage considerably larger than that of P. coccinea, making a tall, rather fastigiate bush, flowering abundantly just after the Hawthorn ceases with dense bunches of white flowers, and never failing to bear great bunches of brilliant scarlet fruits as large as Peas and contrasting beautifully with the foliage from October to December, this is a species worthy and capable of filling a place in any ordinary garden, and in any part of Great Britain. The seeds grow freely, and may give rise to forms differing somewhat in the shape of the leaves, the exact shade of the ripe fruits, and the precise time of ripening, but all alike worth growing; and if it be desired to propagate any one of the forms it may readily be done, either by cuttings or by layers. Award granted on November 27, 1922.

RUBUS BIFLORUS QUINQUEFLORUS.

Many Rubi have come out of China, and some have little perhaps to recommend them for our gardens, but the subject of this note is not one of the latter. It is a striking plant, robust and handsome and graceful in habit. It owes its value to the remarkable stems, which are covered all over with a thick coat of wax so that they look as though they had been whitewashed (see Fig. 10), and strike a note in the shrub border which is almost unique in its effect. The canes reach about 10 feet in length, but arch over and root at the tip. This habit makes them easy to propagate, and the palatable fruits are also freely produced, seedlings appearing to come true. The plants are best treated in the same way as summer fruiting Raspberries, old canes being cut out after flowering, about August, leaving the strong young canes for their winter effect. The plant is all the better for liberal treatment. Award granted on November 27, 1922.

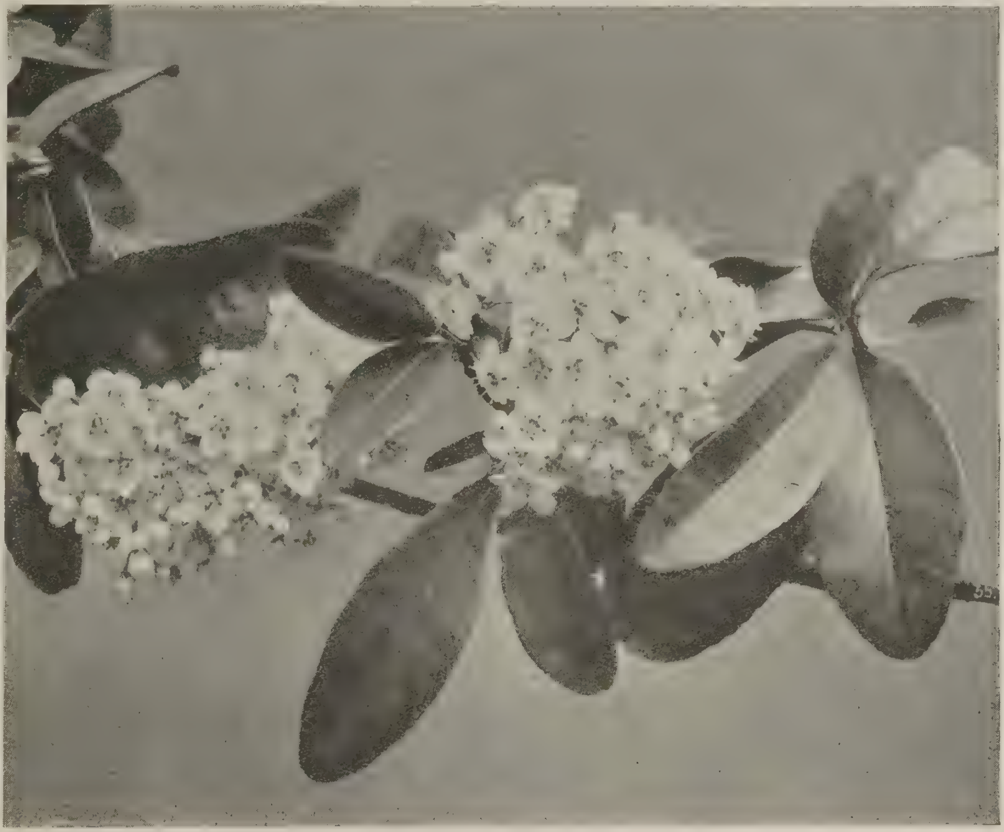

FIG. 11.—PYRACANTHA GIBBSII. R.H.S. AWARD OF GARDEN MERIT.

TREES AND SHRUBS.

BROOMS FOR WOODLAND PLANTING.

SOME years ago the problem as to how to make the best use of some very dry, freely drained parts of a woodland garden was solved by planting in the more open parts various species and varieties of Cytisus and Genista. These, generally, are naturally sun-lovers, but most of them succeed quite well where they do not get full exposure to sun, in situations partially shaded by the high branches of deciduous trees. We made no special soil preparation for these Brooms, which were put, when young, direct into the light, woodland loam, and their adaptability to such treatment is not the least of the good characters of these shrubs. Some one or another of them are in bloom from spring to December (if we may include Spartium junceum) and, apart from being among the most graceful and beautiful of all hardy flowering shrubs, the Brooms may be relied on for regular and prolific blossoming every season. Yet another admirable attribute of most of the Brooms is the readiness with which they may be raised from seed, and the very brief period—two or three years—which elapses before seedlings attain the flowering stage.

Despite the introduction of many novelties, and the high general level of excellence possessed by the Brooms, I consider the old White Spanish Broom, Cytisus albus, the most beautiful, as it is also one of the easiest to cultivate. In habit it is the embodiment of lightness and grace, the yard long racemes of pure white flowers wreathing the sweeping twigs from base to tip. There are a few varieties of this excellent species, the best of which is, perhaps, grandiflorus, with rather larger blossoms, C. albus comes freely and true from seed sown in the open, and though it prefers full exposure it is by no means averse to half-shade.

These last remarks may be applied also to another first-rate Broom, Genista virgata. Though a native of Madeira, this appears to be perfectly hardy and will grow into a dense and large bush eight feet high, and as much through. The small leaves, with which the branches are thickly furnished, are pale green, and so covered with silky hairs that the bush has a greyish tint. The blossoms are small, but produced in such abundance at the ends of the fresh growths that the whole shrub becomes a mass of yellow in mid-summer. Seedlings of G. virgata grow at a remarkable rate, and, like most others, do not resent being moved from open ground if this is done when they are young.

C. praecox, a hybrid between the White Broom already mentioned and the thick-set, bristly C. purgans, ranks high in any selection of Brooms, for it has inherited the best qualities of each of its parents. It possesses much of the elegance of C. albus and some of the rich colour and all the fragrance of purgans. The flowers open in spring—often as early as March, with us—and the shrubs are invariably heavily laden with blossom, causing the branches to droop gracefully. The perfume from a group of C. praecox is like that of a Bean-field, and for many weeks in spring will pervade the whole air for a great distance.

Though admirable when grown as a single specimen in the rock garden, C. praecox is better grouped in the woodland, on open banks or on the lawn. It also will succeed in no more than part-day sun. When old plants begin to fail, though they are remarkably long-lived for their race, a fresh stock from cuttings should be ready to replace them.

For an open, warm, dry situation, the three-feet C. purgans is a useful little shrub. Its dense, stiff, upright growths and compact habit are somewhat uncommon features in this family.

and well-grown specimens will often be as golden with spring blossom as a mass of Genista hispanica, and much more fragrant.

Good as are most of the many forms of our common Broom (C. scoparius) for bold effects, the most beautiful of them all is, I think, "Moonlight" (pallidus). This splendid variety possesses all the grace and vigour of the type, but it appears to be even more floriferous than the latter; the blossoms are slightly larger and they are of a most enchanting shade of ivory, or nankeen, which is peculiarly attractive in subdued or evening light. C. s. Andreanus, together with several others of its class, must also be mentioned, but the dappled impression created by the parti-coloured blossoms of these gorgeous varieties does not always seem a happy one in woodland surroundings. That, however, is a purely personal opinion; I prefer self-coloured Brooms for the purpose in view.

There is a late-flowering form of C. scoparius sent out from the Newry Nursery, which is deserving of mention, for it enables us to maintain a succession of C. scoparius from the time the type ceases blooming at midsummer right on to August and often later. These late Brooms, moreover, are more robust in habit and growth, more leafy and even more prolific in flowering than the common form. They come true from seed and, needless to say, are quite easily raised.

The pretty C. Dallimorei, a hybrid raised at Kew from C. albus × C. Andreanus, is still uncommon. It has not done very well in our soil, though most kinds prosper so well, but it is worth much perseverance since the mauve and rosy-mauve flowers are very lovely, and the plant is decidedly distinct.

The Sicilian Genista aetnensis is hardy enough for most places provided the soil is light and the aspect warm. This species grows to a considerable height (8 ft. or more) and old plants are often leggy and ugly, but this defect can be overcome if care is taken in selecting the site and G. aetnensis is planted with suitable companions. At any rate G. aetnensis is worth a deal of trouble, for the thin, drooping twigs, which are destitute of leaves, are exceedingly graceful. The pretty and sweetly-scented flowers are borne on the silky new growths at the tips of the branches, in July.

Another first-rate Broom for open or partly shaded places is Cytisus monspessulanus, which in habit, form and blossom is much like C. fragrans of greenhouses. It is a perfectly hardy shrub of about 5 ft., very leafy, and bears a most prolific crop of small yellow flowers in spring and often again in autumn. Being easily raised from seed, there is no reason why any garden should be without a group of this fine Broom, yet it is by no means common. As for C. fragrans I can only state that this is very much hardier than is generally supposed. We have recently been trying it in the open, and it has done splendidly. Last winter we had 15-20 degrees of frost on several occasions, but our plants were not injured in the least.

C. nigricans is valuable as an August bloomer, and the best form will produce spikes of yellow blossom nearly a foot long. It will do in the poorest, hottest soil, and is readily propagated from seed. C. n. var. Carlieri is an admirable variety, or sub-species, of the above, which comes into flower as the latter goes off, often continuing in bloom into October. Both kinds should be cut fairly hard back in February. During the later autumn we have the fine golden yellow spikes of Genista tinctoria, the tall variety of which will make a shrub 4-5 feet high, and then there is the semi-prostrate Genista (syn. Corniola) mantica, which appears to be closely allied to, if not a form of G. tinctoria, an effective early bloomer in partial shade. The foliage of these plants is distinct, the leaves being comparatively large, dark green and glossy.

Genista cinerea, of southern Spain, is a species of great merit, yet one that is seldom seen in gardens. It is a late summer and autumn bloomer, which in itself will be a recommendation to many, but it is also most prolific in its yield of blossom and one that makes a neat and compact bush some three feet high. This species should be planted in a warm, sunny corner. *J.*

MARKET FRUIT GARDEN.

December opened dry, but in the latter half of the month there were only three days without rain, the total amount at my place being 3.52 in., making it the wettest month of the year with the exception of January and August. This brought the rainfall for the year up to 29.96 in., which is nearly double what we had in 1921, but only about half-an-inch over the average of the last twenty years (29.47 in.). The number of rain days was 160, or eight above the average, which proves that 1922 was a dull and showery year rather than a very wet one. Only lately have wells filled appreciably, springs started to run, and water remained on the surface of the ground for any length of time after rain. There is no doubt that this is all to the good so far as fruit trees are concerned, and that they will thrive all the better in the coming season for having the soil well stored with moisture this winter.

The Past Season.

From a fruit-grower's point of view there was only one serious blot on the season of 1921, and that was the poor trade for the produce in glutted and depressed markets. Apart from this it was not a bad year. Rather more sunshine would have been welcome, no doubt; but in spite of its absence, bountiful yields of most of the important crops were secured with exceptionally little trouble from pests and diseases. Unfortunately the financial result of the year's working was so poor in many cases that the pleasant features of the season are obscured. Personally, I must consider myself very lucky, for, even after balancing up the year's accounts, I can look back on 1922 with pleasure. In some of the provincial markets to which I have easy access, prices did not slump quite so badly as they did in Covent Garden, always provided that the fruit was thoroughly well graded and packed. The following comparison of gross prices in certain years may not be without interest:—

Apples.	1922.	1921.	1920.	1913.
Beauty of Bath ...	7/6 to 8/-	8/6 to 12/-	10/- to 21/-	5/6 to 6/-
Mr. Gladstone ...	6/- to 7/-	5/- to 6/6	11/8	3/- to 4/6
Lord Grosvenor	1/6 to 3/6	2/- to 6/-	9/- to 12/-	2/3 to 2/6
Worcester Pearmain	2/9 to 6/6	5/- to 6/6	10/- to 20/-	4/- to 4/6
Chas. Ross	4/6 to 8/6	9/- to 10/-	20/- to 24/-	4/-
Cox's Or'ge Pippin ...	7/- to 12/6	7/- to 14/-	20/- to 30/-	6/6
Allington Pippin ...	3/6 to 5/-	3/6 to 7/6	11/- to 15/-	
Lane's Pr. Albert	2/6 to 3/-	3/6 to 6/-	10/6 to 11/6	1/6 to 2/4
Bramley's Seedling	3/-	3/6 to 3/9	11/- to 12/-	2/3 to 3/6
Blenheim Pippin	5/6	8/6 to 9/-	13/6 to 17/-	
Plums.				
Early Rivers ...	6/- to 12/-	21/- to 25/-	19/- to 17/6	7/6 to 8/-
Czar ...	5/- to 6/-	18/6	14/- to 15/6	5/6 to 8/-
Victoria ...	4/6 to 8/6	23/- to 25/6	11/- to 16/6	4/6 to 16/6
Pond's Seedling	5/- to 8/-	21/-	11/- to 15/-	5/3 to 6/6
Monarch ...	7/6 to 9/-	20/-	15/- to 18/-	5/-
Other Fruits.				
Black Currants	22/6 to 26/-	22/- to 24/-	24/- to 32/-	5/6 to 8/-
Cob-nuts	4d. lb.	6½d. to 8d. lb.	1/- to 1/3 lb.	8d. to 10d. lb.

With the exception of Cobs, the prices are all per half-sieve; and in the case of Apples they are for first grade fruit only.

It will be seen that most varieties of Apples dropped in value as compared with 1921, although the crop in that year was heavier. Chief interest, however, lies in the comparison between 1922 and the pre-war year 1913. We are not quite down to pre-war values, but we are much nearer to them than we ought to be, considering the difference still felt in the cost of production and marketing. As a matter of fact, in my case, any slight advantage in last season's prices over those of 1913 might fairly be credited to decidedly improved grading. The combined influence of restricted imports, a very short crop, and "plenty of money about," is shown by the extraordinary prices of 1920, which are not likely to be seen again by this generation of growers.

Prices of Plums are notoriously greatly influenced by the season and crop. Thus it is useless to compare the price realised for the huge crop of 1922 with those obtained for the light yield of the previous year. Mid-season Plums fell below pre-war values, but late varieties, which were scarcer, were slightly above.

Black Currants are still a very cheerful feature, but chiefly because bud mite and reversion have made their culture such a difficult matter. The low price of Cobs in the past season can only be ascribed to a heavy crop and poor trade.

Manuring Orchards.

All my arable plantations have now been dressed with shoddy, as anticipated in last month's notes, or rather with wool combings. These combings are now commonly sold as grey shoddy, though they are not shoddy at all in the strict sense of the word. This material was selected because of its fine, short condition, which makes it easy to spread as little as one ton to the acre, if necessary. But it has one rather serious drawback, from which true shoddy is quite free; it contains many weed seeds which had become entangled in the fleeces of the sheep whilst grazing. However, I decided to put up with this rather than buy a more lumpy shoddy which could not be distributed so well. We are always fighting weeds, and a few extra will hardly be noticed.

With regard to the grass orchards, I stated my intention of applying two cwt. per acre of nitrate of soda just before the trees bloom. On consideration, I have altered my plans. I am afraid that giving the manure at that time would benefit the grass much more than the trees, for the grass would then be starting into active growth. It will therefore be applied in January. The grass is not growing then, so is not able to appropriate it; and the very soluble manure should pass down to the roots of the trees. I do not think there is any danger of much of it washing out of the soil altogether before the trees are ready for it. In Dr. Bernard Dyer's experiments at Hadlow, it was found that nitrate of soda can be given during the winter with benefit to fruit trees, even in cultivated orchards.

Winter Moths.

It is reported from several districts that winter moths are being caught in large numbers on grease-bands this winter. I have not done any banding, as I prefer to rely on spraying; but I have noticed many of the winged male moths flying against the windows at night. Those who have not banded will be wise, therefore, to be prepared for more caterpillars on the trees next summer than we have had in the last two or three years. The great thing is to spray early, before much damage can be done. I have generally sprayed with nicotine and soap just before the opening of the bloom (chiefly for sucking insects), and with lead arsenate immediately after the fall of the petals, if rendered necessary by the presence of caterpillars. Any young caterpillars that are wetted by the nicotine are killed, but others hatch out afterwards. It would therefore be a great advantage if a protective spraying of lead arsenate could be applied with the nicotine before blooming, so that any caterpillars that escaped the nicotine would find their food supply poisoned by the arsenate. Hitherto this has not been possible without either risk or sacrifice. To mix lead arsenate with soap is to risk scorching the trees, and to leave out the soap renders the nicotine much less effective, because it does not spread and wet thoroughly. It is to be hoped that we may in future be able to overcome this difficulty by substituting the new calcium caseinate spreader for the soap. My present intention is to try this in the coming season. I do not know whether the spreader is as effective as soap, but it will probably be good enough to increase the spreading power of the nicotine, whilst it will certainly improve the arsenate. Casein spreaders are already on the market, but they appear to be none too cheap at present.

Reviving Old Trees.

Apple trees of weak-growing and prolific varieties frequently cease to grow after a time unless the leaders are pruned every year. The branches become thickly studded with fruit buds and spurs right to the tip, and little further extension is possible. In pruning last winter I tried to induce some trees of this description to start into growth again, and success has followed in most cases. The method is to search for a wood bud somewhere near the end of the branch, prune to that, and then clear the end of spurs and fruit buds for about six inches. Thus a new growing point is formed, which will produce some new wood provided that the manurial needs of the tree are not neglected. I hope, by tipping the leaders of all trees every year, never to allow any of my younger trees to get into a state needing the above treatment. When the place was planted 22 years ago, there was urgent need to get the trees into bearing in the shortest possible time, and the policy of reducing pruning to a minimum after the first two or three years of foundation work was no doubt the best way to achieve this. In the case of trees planted in recent years, there is less hurry to obtain returns; so leaders will be tipped every year sufficiently to keep the trees growing.

APPLE ALLINGTON PIPPIN.

Personally, I consider that for flavour Allington Pippin easily comes next to Cox's Orange Pippin amongst the Apples commonly grown for market. Yet it is never a favourite with the public. Last autumn it was particularly hard to sell, and the bulk of the first-grade fruit made only 3s. 6d. per half-sieve. There are two reasons for this. One is that Allington Pippin does not colour well in some districts, particularly in a sunless season. The other and more potent reason is that so many growers market this variety long before it has acquired any flavour, and this gives it a bad name with consumers. Allington Pippin must mature so far as possible on the tree. I pick it last of all. There is no hardship about this, for it hangs on remarkably tight. I have had the fruit on the trees after the leaves have fallen.

Allington Pippin, by the way, is an awkward tree to prune and train. Mr. H. N. Grubb has found this in his pruning experiments at East Malling, and he gives some hints on the subject that are worth having. He says in his report :—" One cannot leave a bush Allington without any tipping at all, for the natural habit is so spreading and the branches are so slender (when not tipped) that the first heavy crop of fruit brings them right down on to the ground; and, further, the fruit soon becomes very small if no tipping is done. Yet when the leaders are tipped one-half, as ours have been, the result is a hedge. Some growers have actually top-worked bush Allingtons because of the hopeless result of tipping. Yet the problem, I believe, is easily solved. Tipping must be done for some years after planting to keep the branches up off the ground, but when the tree is due to come into bearing—say, about the sixth or seventh year—the tipping should almost, if not entirely, cease until the crops of fruit are heavy enough to keep the growth in check. Then a moderate tipping may begin again, and may increase in proportion to the crop." *Market Grower*

FRUIT REGISTER.

YELLOW-COLOURED DESSERT APPLES.

SOME of the yellow-coloured dessert Apples are well worth growing, for not only are they of attractive appearance, but of excellent quality. Amongst the best of this type are Golden Reinette, fruit of medium size, in season from November to December; Werder's Golden Reinette, a mid-season variety, in perfection in October; Golden Pippin, a very attractive variety, with skin of rich gold colour, and a late variety that keeps well until April; Cockle Pippin, a very pretty, medium-sized fruit, richly flavoured and highly aromatic, keeping sound until April and May; and the old Lemon Pippin, which is extensively used for cider-making in some parts, but well worthy of the attention of growers of Apples for private establishments, as it possesses good flavour and is one of the richest yellow-coloured Apples grown. *Pomona.*

DEGENERATION OF THE POTATO.*

IN so far as it shows itself in cultivation, degeneracy in the Potato may be attributed to various causes, which for their better understanding should be distinguished, and separately studied. It is due :—

(1) To the influence of various diseases, notably Frisolée (Leaf Curl?) and its mosaic form, rolling, or Leptonécrose; to Crinkle (recently diagnosed); and perhaps to other diseases as yet imperfectly understood, which are generally admitted to be the most direct causes of the impoverishment experienced at the present time in nearly every country.

(2) To the imperfect adaptation of certain varieties to the conditions of soil and climate in which they are cultivated.

(3) To the exhaustion of the nutritive elements in the soil, and also perhaps to the toxins left behind by plants previously cultivated in the same ground.

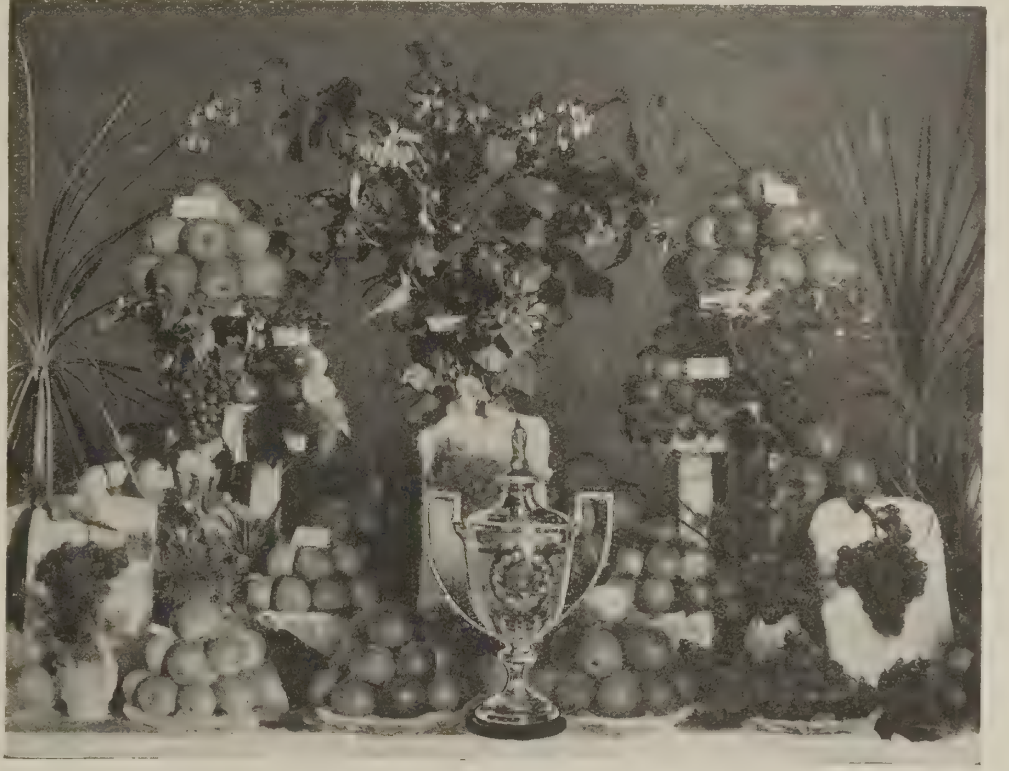

FIG. 12.—EXHIBIT OF DESSERT FRUITS WHICH WON THE SOUTHAMPTON HORTICULTURAL SOCIETY'S CHALLENGE CUP ON NOV. 1, 1922. SHOWN BY CAPT. J. M. DRUMMOND (GR., MR. LEWIS SMITH), CADLAND PARK, SOUTHAMPTON.

(4) To the progressive impoverishment of the varieties themselves, by reason of their continuous propagation by asexual methods.

Leaving out of account the parasitic pests, the latest researches in which have been the subject of numerous publications, and which were fully considered at the Conference in London on the subject of the Potato, there is no doubt that, in the case of the Potato, as in that of the greater number of cultivated plants, notably Wheat, varieties possess particular requirements in the way of soil and climate which render one or the other preferable for a certain locality. It must, however, be recognised that little is known in this respect beyond the fact that certain varieties are more largely cultivated in some localities than any others, notably Merveille d'Amérique in the Charolais, Early Rose in the south-west of France, Institut de Beauvais in the Midi, Fluke Géante in Brittany, Jaune Ronde in Limousin, etc. Thus, the imperfect adaptation of varieties to the conditions of the locality may form a cause of premature exhaustion.

The exhaustion of the soil by previous crops, even other than the Potato, can no longer be doubted. It is well known that manures, animal or mineral, do not restore all, or proportionately, the elements drawn from the soil by the last season's crops, besides which they are apt to leave the germs of maladies, and certain secretions known as toxins, which may injure succeeding crops.

All practical gardeners know that in virgin soil, or soil which has for a long time remained uncultivated—fallow ground, woods, fields, or newly-made gardens—the plants grow more luxuriantly than elsewhere, and are usually less easily affected by disease. Different conditions prevail in new greenhouses, where, on the contrary, it is difficult to make Ferns germinate, while in old structures they will frequently sow themselves and flourish abundantly. It will easily be seen that the conditions which contribute to the exhaustion of the Potato are diverse and very complex.

We now come to the question of physiological degeneration, that is to say the degeneracy which, excluding the causes above-mentioned, is brought about by the exhaustion of the varieties themselves owing to their continuous propagation by tubers. This is at the present time a much discussed subject, some denying that it has an unfavourable effect, others admitting it in principle, if not—for want of conclusive proofs—in fact.

I should like to be permitted to take the affirmative view, and to express some personal opinions on the subject not only as affecting the Potato, but as affecting a large number of cultivated plants, including fruit trees, Chrysanthemums, Carnations, Gladioli, etc., all of which, like the Potato, are propagated vegetatively.

Vegetative propagation, such as grafting, advances the evolution of plants in which it is employed, making the flowering period not only earlier, but more abundant, and of longer duration than in the same kinds of plants raised from seed. Propagators, many, at any rate, multiply Glycines, Bignonias, etc., by layering; and they employ grafting to judge earlier than they could otherwise the value of fruit trees raised from seed. The graft thus inherits the physiological age of the plant which has produced it, and is thus, as it were, born adult.

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* A paper read by M. S. Mottet and translated from the *Journal* of the French National Horticultural Society.

Now, the propagation by tubers of the Potato is really nothing but vegetative production by its extremities, which are actually subterranean branches infinitely ramified, and of which the vigour decreases with age, like that of the branches of a tree. The branches of the common Acacia, very spiny when young, become inermous in age. Why should the Potato remain immune to the effects of age, which are common to all organisms? Diseases are capable of shortening, even considerably, the period of productivity, and such is the case, no doubt, with the diseases already mentioned, though I cannot admit that they are the sole cause of degeneration in this vegetable.

In the case of degeneracy, then, we can distinguish at least two principal causes :—

(1) That inherent in the variety itself, which we will call exhaustion by natural ageing; and

(2) That due to the depressing influence of disease, ending in premature exhaustion.

The latter condition would naturally act more quickly in the case of a variety which is originally less robust, less resistant, and cultivated in less favourable conditions. Of the innumerable varieties which have been put on the market since the beginning of the last century, especially during the latter half, and most of all in our own time, nearly all the old ones have disappeared, and the greater number of the novelties only last a few years. Of the old ones we may instance La Chave, Marjolin, and Vitelotte (the three senior ones, dating from before 1815), Pousse Debout, 1847; Saucisse, 1847; Jaune Ronde Hâtive, 1851; Farineuse Rouge, 1870; Merveille d'Amérique, 1874; and Magnum Bonum, 1876; to mention only a few of those still widely grown. These varieties possess at the same time longevity, and resistance to diseases caused by degeneracy, of which one, Frisolée, though imperfectly understood even to-day, is not less than a hundred years old.

It may be advanced that many new varieties of Potatos have been abandoned as being found inferior in point of productivity, vigour, quality, etc., before they had time to degenerate, but the greater number disappeared because they lost, more or less rapidly, their original merits, either on account of congenital feebleness—and we shall see later on that this makes its appearance in the seedlings, from their earliest appearance—or on account of disease.

In all important genera of plants which are highly bred, and all the more, perhaps, because they are subjected to intensive cultivation, the same phenomenon is observable of the successive and more or less rapid disappearance of varieties which, after a period of luxuriance, cease to be valuable for cultivation in our gardens.

(To be concluded.)

VEGETABLES.

EARLY POTATOS.

Experience shows that the Potato is a fastidious vegetable. Certain varieties turn out very well on some soils, fair on others, and poor in certain cases. In these gardens the vegetable quarter is on a hill sloping south. The soil is gravelly and a few feet below the surface is chalk.

During recent years I have tried several varieties of Early Potatos. The one variety that has surpassed all others in this section, both in cropping and cooking qualities, is Ninetyfold. It is ten days earlier than Sharpe's Express. Our soil apparently suits this variety. It forces extremely well in brick pits, and its dwarf haulm is also a favourable item. A visitor from Ireland was so impressed with its quality when cooked that he made a special note of the variety and remarked he had eaten no better Potato. May Queen and Eclipse we cannot grow at all well. The main crop variety, Kerr's Pink, makes strong growth and gives a heavy crop of tubers, but the latter are absolutely uneatable, and no cook will try them twice. *Geo. W. Stacey, Chorley Wood Cedars, Herts.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Flowers for Glasgow Market.—Apropos the note (see p. 367, December 28, 1922), on the garden produce passed through Glasgow, I recently went over one of the most extensive of the Scottish nurseries, where flowers, etc., are grown for market. Some 95,000 Chrysanthemums were either over, in bloom, or yet to open. The plants were all disbudded and carried a crop of perfect flowers. December Yellow and Romance were especially fine; John Thorpe had been all cut, but Western King and a few more whites and coloured sorts were only less beautiful. To a gardener all this may not be anything wonderful, but when it is told that, by chance, I saw these plants being set out in a quarter in the open which the previous day had been cleared of a crop of Cabbages; that men with an ingenious implement scooped out a hole in the ground just large enough to hold the roots, and that the plants were put in and left to themselves till autumn, when they were transferred to structures cleared of Tomatos, the results, to me at least, were astonishing. I learned that the blooms realised 4s. to 5s. per dozen up to Christmas. When the proprietor commenced business about forty years ago, flowers in Edinburgh could only be sold in little bouquets, and it is related that a benighted individual took a few Arums to market one morning, and was unable to find a purchaser; while another, who had a few pounds of Tomatos, resolved to tempt the Edinburgh folk, but he also was disappointed. No one would buy. Now growers cannot produce enough early Tomatos, and in the establishment of which I write, another block of glass was erected last summer especially for the production of these fruits in May and June, the Chrysanthemums with which they were lately filled being early sorts. Some of the old structures were erected by specialists, but more recently all work on buildings, whether of glass, packing sheds, motor garage, and even a deep artesian well, has been carried out by the garden staff. All the packing boxes, of whatever description, are made on the premises, and the high prohibitory railway rates made it imperative to set up a motor van for marketing, so that to a great extent the establishment is self contained. I am informed that in the busy season this van makes three journeys of over 20 miles each in a day. *R. P. Brotherston.*

Lonicera Hildebrandtiana.—Mention of this plant in a recent issue of *Gard. Chron.* prompts me to inquire if, after 30 years of cultivation, its approximate worth as a flowering climber has yet been determined. After seeing it flowering sixteen years ago, with Mr. McIver, in the long plant corridor at Queen's Park, Glasgow, and at other times in the Botanic Gardens there, it appears to be a rampant climber, but very shy of flowering, and interesting as being the giant of the genus. But for floral effectiveness, it seems much the inferior of other species, L. sempervirens, for example. *Mid-Lanark.*

Lithospermum prostratum.—Mr. W. Somerville on page 353, Vol. LXXII., states that he would like to get at the truth as to the cultural requirements of this beautiful plant. In the Hindhead and Haslemere district this plant thrives in an amazing manner in full sun, grown on a raised bank in the ordinary sandy soil of the district, well trenched and thrown into a heap about 5 feet high, mixed with some well-rotted peat formed of the top Heather sod about two years old, and plenty of broken stones. I consider efficient drainage the most important detail in the cultivation of this plant. In these gardens, previous to the war, very large specimens existed on the rockery, but with years of neglect most of them have disappeared. Were I planting afresh, I would most certainly plant in full sun, on a raised position in porous soil, where the roots could ramify for yards in all directions. The type plant is the more vigorous, and appears to always have a few flowers, even in the depth of winter. The variety Heavenly Blue is very fine when well grown. *H. Eavis, West Down Gardens, Hindhead, Surrey.*

Rhododendron on Limestone.—Mr. Kingdon Ward, in his last two notes (pp. 352 and 378 of *Gard. Chron.*, Vol. LXXII.), mentions Rhododendrons growing on limestone; it would be of interest to know what kind of limestone he refers to? If it is limestone, is it not in centuries old vegetable matter that the plants find a rooting medium? This is an old subject, but one which requires to be cleared up. Some of your readers may be able to throw a little light on it. It used to be considered that Rhododendrons required peat, but we know now they will succeed well in clay or even a sandy or other soil of a porous nature. *J. P.*

Caustic Fruit Wash (p. 13).—Carbonate of potash has little or no insecticidal nor cleansing properties, and its addition to a caustic winter wash is quite useless. If it is used in substitution for part of the caustic soda, as is sometimes recommended, it does actual harm by weakening the wash. Some recipes still give half caustic soda and half caustic potash. This makes a good wash, but is no improvement on caustic soda alone, whilst the caustic potash is a good deal more expensive. A simple solution of 2 lb. caustic soda of 98 per cent. purity in ten gallons of water is completely successful in cleansing trees of moss and lichen, and no additions of any kind are required. I have used this simple wash on a large scale, and know nothing that cleanses the bark more thoroughly. Mr. W. Tiplow (p. 13) recommends half this strength, which I should not have thought would be effective. The standard strength is 2 lb. per ten gallons, and I have never known it do any damage to fruit buds if used whilst the trees are dormant. *Market Grower.*

Anthemis cupaniana (see p. 7).—I agree with Mr Arnott, that Anthemis cupaniana is a very pleasing plant, and one that flowers very late; my plant has a stray bloom or two open, and a few buds, whilst it comes into flower very early. My object in writing is to warn growers that this plant spreads to an unusual extent, and, unless kept within bounds, would soon smother and kill any neighbouring plant of a frailer nature. My specimen was inserted as a small cutting two years ago and it rooted with ease; it now measures five feet across. It is growing in stiff, clay soil, and seems to enjoy the cool, moist surface beneath its mass of growth. The flowers are useful for indoor decoration as cut blooms, and have much the appearance of small Marguerites. There is no difficulty in keeping the plant within reasonable bounds by clipping it back with the shears or knife. *T.*

Teucrium fruticans.—I read with interest Mr. J. Jeffery's note on Teucrium fructicans in your issue of January 6. The plant, although it hails from the Western Mediterranean region, will withstand our winters well, at any rate if grown under the protection of a south wall. A specimen grown in my garden has thriven for about ten years, and it is seldom out of blossom, though a heavy frost, as Mr. Jeffery observes, is apt to cut it back. I regard it as far more worth growing than many of the creepers and climbers that are allowed to monopolise good situations. Another good plant, which, however, is too seldom seen out of doors, is Grevillea rosmarinifolia. About twelve years ago I had a rooted cutting planted out in a somewhat sheltered bed, made up of peat, overlying a mound of burnt clay. It grew well until the dry summer of 1921, which proved too much for it. By that time it had become a bush nearly five feet through, and except for two months in late summer, was never without a plentiful display of its red, coral-like flowers. The cuttings root like weeds in moist sand in a cold frame, and indeed, it is probably better to keep relays of young specimens, as the shrub is inclined, at least with me, to become rather straggling as it grows older. Some cuttings inserted a year ago are already flowering in the open ground. *J. B. F., Gerrards Cross.*

Caustic Fruit Wash (see p. 13).—W. Tiplow's experience with caustic fruit washes is absolutely the same as mine, extending over very many years. The trouble is that these various washes do nothing more than cleanse the tree without destroying insects. I have tried almost all the different washes on the market, and have not found one that will destroy or clear a tree of Mussel Scale. My object in writing is to ask any of your correspondents if they have done so, and if so, would they kindly give their experience. I think you will agree that spraying is costly, involving labour, machines and materials, and to get no results is disappointing. *E. F. C.*

Electrification of Crops.—Attempts to hasten growth by means of electricity seem to have engaged attention many years ago, and may be worth mentioning in the light of the recent article (*Gard. Chron.*, December 30th, 1922) on more modern trials. Haply, I lately came across *Tracts on Practical Agriculture and Gardening*, "2nd Edition, greatly improved, London, 1773," by R. Weston, who apparently, from the bibliography, was a knight, though that does not appear on the title page. Chapter XXV., "Proposition of electrical experiments to destroy insects on trees and particularly on plants in stoves and greenhouses, with an account of a newly invented bellows calculated to kill all sorts of insects," contains an allusion to experiments made by the Abbé Nollet, who electrified pots of seeds for 15 days, the electrification having been maintained for 2, 3 or 4 hours a day; he observed that the seeds were raised two or three days earlier and that there were a greater number of shoots as contrasted with the non-electrified pots. On June 2nd, Weston sowed four pots of Mustard and Cress; two of them were electrified for ¼ hour four times a day. On the 4th the electrified seeds were more tumid and bursting than the controls, and on the 6th, when the experiment was stopped, the electrified seedlings were more in number and of greater vigour. On p. 295, reference is made to the *London Magazine* of "10 years ago," bringing the date back to 1763, as containing "a plan of a perpetually electrified garden." Weston's description is meagre, and no details are given as to how the electricity was applied; it may be presumed, however, that the old statical machine was employed, otherwise the word *galvanised* would probably have been used in place of *electrified*. Perhaps owing to the labour of turning the machine the experiments were few and curtailed. I remember seeing an account of a much more recent plan, if memory serves me, of Dutch origin, but have not a reference by me; this was to utilise the earth's electricity by attracting it from the air. This was done by planting numbers of metal rods amongst the crop, and it was claimed that thereby much more prolific effects were produced than on unrodded ground. I rather incline to the opinion that no electrification experiment is complete without controls which are treated with peroxide of hydrogen and also nitric acid (or nitrous) in dilutions containing infinitesimally small amounts of the drugs. *H. E. Durham.*

Home Grown versus Imported Apples.—When recently in Covent Garden Market I was greatly impressed with the appearance of imported Apples as compared with those from home growers. I noticed on one salesman's stand English Apples in baskets offered side by side with American and Colonial Apples in boxes and barrels, and the condition of the fruits bore no comparison; those from home growers were, apart from their inferiority in grading, mostly bruised and dull looking, while those even in the barrels from abroad were fresh and brightly coloured, with scarcely a blemish. Are imported Apples firmer in the skin than those cultivated in this country? It is remarkable that the imported fruits after a journey of several thousand miles show little effects of travel. Imported Apples in barrels, at a time when our markets were flooded with the home grown crop, were realising in my town in the country 4d. per lb., whereas others from local growers were on sale for as low as 1d. or 2d. per lb. The retailer informed me that he made more profit on the imported fruits. *F. B.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, December 21, 1922.—Present: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Coningsby, A. G. Ellwood, J. Evans, J. Howes, J. Jackson, W. M. Jackson, A. Keeling. J. Lupton, D. McLeod, E. W. Thompson, J. Thrower, and H. Arthur (secretary).

First Class Certificates.

Cypripedium Christopher var. Grand Monarch. A fine flower more densely spotted than the original Christopher; *C. Eurybiades var. The King.* A flower of good shape, with a wide white margin to the dorsal sepal, the petals being richly striped mahogany colour; *C. Matthewsianum Usk Priory var.* The dorsal sepal is spotted with rich purple; the petals and pouch are mahogany red. From S. Gratrix, Esq.

Cattleya Enid alba Bletchley Park var. A form with broad, white petals and rich rose-purple lip From Sir H. Leon, Bart.

Odontoglossum crispo-Solon Pitts' var. A rich, purple-coloured Orchid with a margin of clear white on the sepals and petals; the broad, flat lip has a purple blotch and white tip. From H. T. Pitt, Esq.

Awards of Merit.

Cypripedium Mandarin (*Shogun* × *Earl Tankerville*). From Mrs. Gratrix.

C. Noel (*Becktoniae* × *Nirvana*). From Dr. Craven Moore.

C. Swallow (*Arthurianum* × *Satyr*). From Capt. W. Horridge. *C. Helena* (*Shogun* × *aureum*). From S. Gratrix, Esq.

C. Statul (*clinkaberryanum* × *Mrs. Carey Batten*). From Col. Sir J. Rutherford, Bart.

Groups.

S. Gratrix, Esq., Manchester (gr., Mr. J. Howes) was awarded a Gold Medal for a group.

H. T. Pitt, Esq., London (gr., Mr. Thurgood), was awarded a Gold Medal in addition to a First-Class Certificate for his plant of Odm. crispo-Solon Pitt's var.

A. T. Cussons, Esq., Prestwich (gr., Mr. F. Cookson), staged a group to which a large Silver Medal was awarded.

Messrs. Sanders, St. Albans, were awarded a Silver Medal for a group.

READING HORTICULTURAL BRANCH OF YOUNG FARMERS' CLUBS.

The Annual General Meeting of the Reading Horticultural Branch of Young Farmers' Clubs; promoted by Sutton and Sons, was held in the Club Room of the Abbey Hall, Reading, on Friday, December 8. The Club Room was crowded, every member of the club being present, and also a large number of prospective candidates who were anxious to secure the plots of ground rendered vacant by those members who have commenced work or left the district.

The Secretary reported that 12 of the 20 original members wished to continue during the coming year, and that there were eight plots available for new members.

The election of officers for 1923 then took place. Mr. M. Cousins was appointed Chairman; Mr. A. Irving, Vice-Chairman; Mr. P. Pym, Secretary; and Mr. W. Langford, Treasurer.

Mr. W. F. Giles then announced that the *Daily Mail* had judged the books in the Note Book Competition, and had asked him to say how pleased, and even surprised, they were with the splendid way in which some of the members had kept them, and sent their heartiest congratulations.

The winners were: 1st prize Master R. E. L. Johnson, 2nd prize Master G. Warwick, 3rd prize Master P. Pym.

The Treasurer reported that the members had paid in about £18 from the sale of produce from the plots, M. Cousins (the first prize winner of the best plot) being top with £2 3s. 1½d., closely followed by others, all of whom had sums between one and two pounds standing to their credit, realised from the three pole plots.

Obituary.

John Clark.—Sincere regret will be felt among Scottish arboriculturists on learning of the death of Mr. John Clark, who for about 30 years held the position of head forester to the Marquis of Aberdeen and Temair at Haddo House, Aberdeenshire. He retired through failing health over three years ago. Mr. Clark was the son of the late Mr. John Clark, forester, Keith Hall, Aberdeenshire, under whom he acquired a thorough knowledge of his profession. He afterwards went south for further experience, and eventually held the positions of forester at Kelly Castle, Renfrewshire, and on the Arran estates of the late Duke of Hamilton, from whence he was appointed to the Haddo estates. He was a member of the Royal Scottish Arboricultural Society for nearly half a century, and was one of the principal promoters in establishing the now prosperous branch of that society in Aberdeen. Mr. Clark's long practical experience, combined with keen observation, made him a much sought-after man by those interested in forestry, and time and again his advice proved highly advantageous to those consulting him. A most intelligent man, he was highly respected throughout the wide domain under his charge, being a warm-hearted, genial neighbour and sterling friend. He is survived by two sons and two daughters. The eldest son is forester to the Duke of Richmond and Gordon on the Gordon Castle estates, Fochabers, Morayshire, and the younger son is in Australia.

TRADE NOTES.

The seed testing laboratory maintained by Messrs. Clibrans, Altrincham, has been approved and licensed by the Ministry of Agriculture and Fisheries for the purpose of testing all kinds of seeds in accordance with the requirements of the Seeds Act, 1920. Messrs. Clibrans have been working for many years on scientific lines in the cleaning and testing of seeds to enable them to produce stocks not only pure, but unsurpassed for quality. It is satisfactory to note that their methods of seed testing have been recognised by the authorities.

A conference was held on the 3rd inst., under the ægis of the Chamber of Horticulture, in connection with the Departmental Committee Inquiry into the methods of selling and distributing horticultural produce. The meeting was fully representative of the Lea Valley Growers' Association, Federation of British Growers, N.W. Kent Growers' Association, British Glasshouse Produce Marketing Association, the Fruit and Vegetable Section of the National Farmers' Union, and the Chamber of Horticulture. Mr. G. W. Leak. President of the Chamber, was in the chair. A letter was submitted from the Secretary of the Departmental Committee, giving details as to purport of the Inquiry, the terms of reference being: (*a*) Methods and conditions of sale; (*b*) Disparity between producers' and consumers' prices. The Secretary of the Chamber explained that this meeting was convened in order to bring the various sectional interests together, with a view to giving mutual assistance and preventing possible overlapping. The Chairman then invited discussion as to giving evidence and appointing witnesses, and as to whether the Chamber should present the evidence on behalf of the whole industry or whether separate evidence should be presented by sectional associations. He emphasised the importance of eliminating any overlapping. Mr. A. B. Lister, Secretary of the British Glasshouse Association and the Lea Valley Growers' Association, stated that these two Associations had informed the Departmental Committee that they desired to give evidence, and had since been allocated a definite time for hearing. Mr. E. C. Boughton, Secretary of the Federation of British Growers, stated that his Federation had decided that they should offer evidence independently, and that they were conferring with the Fruit and Vegetables Section of the National Farmers' Union in that respect.

Mr. Edmunds stated that the National Farmers' Union had decided to act in close co-operation with the Federation of British Growers.

A general discussion then ensued of an exceedingly helpful nature to witnesses, also for preparation of proofs of evidence dealing with: various methods of distribution; suggested improvements; railway rates as a large factor; improvement in transport facilities as a means of reducing the excessive amount of handling; markets; tolls and charges; parcels rates; railways and centralisation of distribution, and so on. The conference then unanimously passed the following resolution: "That the Federation of British Growers in connection with the Fruit and Vegetables Section of the National Farmers' Union, be asked to prepare proof of and give evidence in respect of orchard fruit and outdoor vegetables, and that the Lea Valley Growers' Association in conjunction with the British Glasshouse Produce Marketing Association be asked to act in a similar capacity in respect of Tomatos, Cucumbers and Grapes."

A resolution was also carried asking Mr. John Poupart to submit evidence as to London market tolls and charges, the necessity for a special low agricultural produce parcels rate, and methods of distribution by the grower-salesman. Mr. Poupart has agreed to do so, and will appear as the Chamber of Horticulture witness.

LAW NOTE.

A NURSERYMAN'S FAILURE.

At Bankruptcy Buildings, Carey Street, W.C., on Tuesday last, the first meeting of creditors was held of Arthur Douglas Thompson, described as of 11, Adam Street, Adelphi, London, and residing at Hill Crest, Merry Hill Road, Bushey, Herts, against whom a receiving order was made on December 21, 1922, on a creditor's petition. Mr. D. Williams, official receiver, presided.

Debtor came to London from Dover in December, 1912, and shared an office at 11, Adam Street, Strand, where he and Mr. H. Charman started in business as nurserymen under the style of Thompson and Charman. It was arranged that debtor should have two-thirds and his partner one-third of the profits. The business was fairly successful until the war broke out, when his partner withdrew, and debtor continued on his own account until July 25, 1916, at which date he was compelled to execute a deed of assignment to Mr. B. T. Crewe. From August, 1916, to March, 1917, debtor continued the business under the supervision of Mr. B. T. Crewe, when the creditors decided to realise the assets. In April, 1917, he started business at 11, Adam Street, Strand, as a consulting horticulturist. He attributed his present position to the failure of a new invention in relation to a new form of tennis court which he had been laying in various districts, and which had not been a success, and in this connection he had lost from £300 to £400. He further attributed his present position to the fact that a firm of seedsmen offered to finance and form a company to float the tennis court, but debtor alleged that the firm in question subsequently refused to provide the working capital.

He estimated his liabilities at £2,000, and had assets consisting of book debts £300, and farming stock £10, also a claim against a limited company for £2,000, in respect of bad workmanship to tennis courts and excessive charges.

The estate was left in the hands of the official receiver.

THE WEATHER.

THE WEATHER FOR DECEMBER.

A large anti-cyclone maintained the generally dry weather until nearly the middle of the month, when a great break-up occurred, rain afterwards falling almost daily. Both spells, however, were very mild and equable, and the dry period was extremely dull. Winds from west-north-west at first, and from southerly points after the 9th, greatly predominated. Ozone was exceptionally abundant. The mean temperature was 43.3°, or 3.8° above the average. Of sunshine, only 29 hours were recorded, there being a deficiency of 5½ hours. Rain fell on 23 days, or four more than the normal number; and the total amount was 4.17 inches, or exactly an inch above the average. More than nine-tenths of the total was experienced after the 15th, barometric pressure until then being high and steady, but subsequently low and very unsteady, with a minimum of 28.50 inches on the early morning of the 30th. During the closing weeks the subsoil water level rose materially. Southport escaped serious gales, only slight ones being felt on four dates. Definite frost was limited to two nights, and even then to the grass. There was no snow. Hail fell on four days. Thunder occurred on the 18th and 22nd. Fog was restricted to the night of the 14th to 15th. *Joseph Baxendell, The Fernlea Observatory, Southport.*

THE WEATHER IN SCOTLAND.

Weather and the calendar were so much "out of joint" during 1922 that the mildness of the closing month of the year seemed quite appropriately unseasonable. The mean temperature was about 2° above the normal, only at night did the minimum fall below the freezing-point, while the lowest day temperature recorded was 37°. No snow fell during the month, and the rainfall was little more than half the normal, being 1.43 inch on 14 days; the wettest day was the 16th, with a fall of 0.51 inch. Bright sunshine, with a registered total of 39.2 hours, was nearly normal, the daily average being 1.27 hour, and the percentage 18; there were 12 sunless days. From the 17th to the end of the month the atmospheric pressure was exceptionally low, reaching its "deepest deep" of 28.80 inches on the 23rd; the highest reading of 30.38 inches was obtained on the 11th, while the mean works out at 29.63 inches. The mean temperature for the month was 39.5°, with a mean maximum of 44° and a mean minimum of 35°, giving a mean range in 19°. The highest maximum of 54° was recorded for the 12th, and the lowest minimum of 28° for the 11th. On the grass, the mean minimum was 32°, with a lowest of 25° on the 11th; there was ground frost on 12 nights. At 1 ft. deep, with a mean of 39° the soil temperature fell, with fluctuations, from a highest of 42° on the 1st to a lowest of 38° on the 31st. The prevailing winds were from the west and south, with a gale on the 25th. *John Davidson, Director of Studies, Meteorological Station, St. Andrews Provincial Committee, Training College Gardens, Mayfield, Dundee.*

ANSWERS TO CORRESPONDENTS.

Beech Trees Infested with a White "Fungus": *Beeches.* The tree is attacked by an insect, Cryptococcus fagi, known as the Beech coccus. The best remedy is paraffin emulsion, to which has been added a solution of caustic soda at a strength of one pound in ten gallons of water. Spraying should be done for two or three seasons, and should be undertaken as soon as the pest is noticed. The trunk and main branches should be scrubbed with a wire brush, or a stiff scrubbing brush, dipped in the emulsion.

Cacti: *W. J.* You will probably be able to obtain specimens of Cacti and other succulents from Messrs. Cragg, Harrison and Cragg, Heston, Hounslow; Mr. H. Ellison, West Bromwich, or Miss Thompson, Handsworth, Birmingham.

Chrysanthemum Sport: *T. H.* The flower of your sport from Chrysanthemum H. W. Thorpe was not in sufficiently good condition to enable us to form a proper opinion of its merits. However, if, as you suggest, it is quite distinct from the type, you should certainly propagate a stock of it if possible, so as to be able to test it fully by the side of its parent during the present year.

Figs and Tomatos in Same House: *P. L.* Provided you get the first truss of fruit set on the Tomatos before giving too much moisture to the Fig trees, you should be able to grow the two crops together. You must understand that the Cucumber and Fig are both moisture-loving plants, whereas Tomatos require a much drier and cooler atmosphere to grow them successfully; too much moisture would favour spot and other diseases.

Grapes Out of Doors: *N.* The summer of 1921 was most favourable for the setting and ripening of outside Grapes, and with a favourable season your vines will again ripen their fruit, as only in the most favourable localities did outside Grapes mature properly in 1922. Prune last year's shoots to three or four buds and tie in the rods fairly close to the wall, so that they may receive as much benefit as possible from sun heat. Little or no good would be done by manuring the small space at disposal, as the roots will have passed beyond the asphalt, and you must go beyond this. Apply two or three light dressings of Thompson's vine manure to the root area during the season of growth.

Grape Spot Disease: *P. L.* If you are certain the vines have suffered from spot disease, dissolve 6 lb. of sulphate of iron in a gallon of water and use the solution as a wash before the buds swell. Many growers believe spot disease is caused by a sudden chill, such as admitting an excess of cold air on bright mornings after the house has been kept close and moist. Prevent any checks of this kind and you will not be much troubled with Grape spot. Give the vines the usual application of Gishurst compound after the copper sulphate dressing.

Names of Fruit: *J. E. I.* 1, D'Arcy Spice; 2, Alfriston. *J. M.* Waltham Abbey Seedling.—*W. S. E.* 1, Orange Goff; 2, Hambling's Seedling.

Names of Plants: *G. H.* For purposes of identification, the specimens were far too small; we believe, however, that the berried plant is Cotoneaster frigida, and the grey-leaved one Senecio laxifolius.—*J. T. S.* Not recognised; send larger specimen.—*B. and W.* Ornithogalum thyrsoides.—*F. A. F.* and *J. W. B.* We cannot undertake to name Chrysanthemums; send blooms to some grower who makes a speciality of these flowers.—*R. E.* 1. Carpinus Betulus; 2, Pyracanthus coccinea; 3, Prunus lusitanica (Laurocerasus lusitanica).—*J. M., Perth.* 1, Stretlitizia Reginae; 2, Ruscus Hypoglossum, —*D. T. S.* Haemanthus virescens.—*J. A., Brighton.* Rhodostachys pitcairniaefolia (syn. Pourretia mexicana).—*W. F.* Garrya elliptica.—*J. W.* Schinus molle, no doubt imported from the South of France.—*C. S. B.* 1, Acacia Baileyana; 2, Moschosma riparium; 3, Hibiscus Cooperi; 4, Leycesteria formosa.—*M. S.* 1, Cupressus Lawsoniana; 2, Olearia Haastii; 3, Jasminum nudicaule; 4, Genista fragrans.

Forcing Hydrangea hortensis: *P.* Plants that are intended for flowering early should be chosen from those that have made good, plump buds, and have well-matured wood. Plants that have been subjected to a little frost will be found to start into growth much better than those that have been given protection. Place them in a cool house and reduce the supply of water at the roots for a short time. Before placing them into warmer quarters it would be well to overhaul the plants; those that require larger receptacles should be repotted, while others that are considered to have sufficient root space may, after removing the surface soil and correcting faulty drainage, receive a top dressing of rich compost.

Market Nursery: *L. W.* If the employee who is in charge of the nursery is of the opinion that the place could be made to pay, his advice would be better than that of one unacquainted with the business. As you state there is a ready market for your produce and good prices, there should be a reasonable prospect of the business proving remunerative. As you yourself have no knowledge of market gardening, you could place the foreman in full charge and give him a bonus on the profits in addition to a salary. This would be of mutual advantage, as he would then have an interest in increasing the turnover and profits.

Communications Received.—W. S.—W. R.—H. C.—S. W. McL. B.—H. E. D.—J. I. G.—J. C.—J. A.—J. E. A.—Enquirer—D.—E. B.—H. E. D.

THE
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No. 1882.—*SATURDAY, JANUARY* 20, 1923.

CONTENTS.

Alpine garden, the—
  Mesembryanthemum uncinatum .. 34
  Papaver alpinum .. 34
Apples: home-grown versus imported .. 39
Association of Economic Biologists .. 30
Bibliographical rarities 37
Botany, Advanced lectures in 30
Bulb garden, the—
  Lilies for planting in January and February 33
Cultural memoranda—
  Freesias 34
  Home grown Lily-of-the-Valley .. 34
Flower packages and flower packing .. 30
Fruit register—
  Apple Herring's Seedling.. 38
  Apple King of Tompkins County .. 38
Fruit wash, caustic .. 39
"Gardeners' Chronicle" seventy-five years ago 30
Garden notes from S. W. Scotland 36
Gladioli, white 39
Hardy flower border—
  Geranium atlanticum 34
Jones, Mr. H. J. .. 30
Legacies to gardeners .. 30
Obituary—
  Hughes, J. 42
Orchid notes and gleanings—
  Angraecum mirabile 35
  Big Cypripediums .. 35
Pear trees and Pears .. 38
Potato, degeneration of the 38
Raspberries 29
Seeds, effect of moonlight on the germination of 30
Schinus Molle 37
Societies—
  National Rose .. 41
  Royal Caledonian .. 41
  Royal Horticultural .. 40
Turton, Mr. T., retirement of 30
Trees and shrubs—
  Raphiolepis Delacouri 34
  Stranvaesia undulata 34
Uganda, mystery plants of 36
Week's work. the .. 32

ILLUSTRATIONS.

Ceropegia Browni, the home of 36
Cypripedium Chrysostom var. Amy Moore 35
Jones, Mr. H. J., portrait of 30
Lilium auratum var. platyphyllum 33
Pear tree: grafted on the free stock 39; on Pyrus salicifolia 38
Schinus Molle, fruiting branches of 37

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 38.5°.

Actual Temperature:—

Gardeners' Chronicle Office. 5, Tavistock Street, Covent Garden, London, Wednesday, January 17, 10 a.m. Bar 30.5; temp., 37° Weather—Foggy.

Raspberries. The investigations which are being carried out at the Research Stations at Long Ashton and East Malling, on the cultivated varieties of Raspberry, are of great interest both to the grower and to the scientific horticulturist. The first instalments* of the results which have been obtained at these stations show the confusion which exists in the nomenclature of varieties of Raspberry in common cultivation and indicate the importance of the introduction of more accuracy in the use of varietal names. Of cultivated Raspberries few are good doers in all soils; some do well nowhere and others only under certain limited soil conditions. If, therefore, more than one variety be included under one name, there is every likelihood that the confusion of nomenclature will result in disappointment to growers. How great is this confusion at the present time is shown by the tables prepared by Mr. Grubb. Having made a large and representative collection of commercially grown varieties he proceeded to sort them out. He discovered that in many cases one name covers numerous varieties. Black Antwerp does duty for two, Red Antwerp for no fewer than eight. Baumforth's Seedling includes a like number of varieties, and the names Hornet and Fillbasket are each used for seven distinct kinds. Not only is one name used for more than one variety, but one and the same variety often has more than one name. Superlative, Baumforth's Seedling, Hornet, Red Antwerp, Abundance, Marlborough, are the aliases under which Mr. Grubb has found Bath's Perfection masquerading, and the same is true to a greater or less extent of other important varieties. Out of fourteen varieties examined, not one is known universally by the growers who cultivate it exclusively by its right name. To discover the origin of this confusion is no less important than to remedy it. Mere error in transposing names, though it doubtless occurs, will not account for this wholesale confusion. The growth of seedlings from fallen fruit doubtless accounts for some of the misnaming, but not by any means for all or even the larger part, for the rogues contained in stocks are often found to be definite, named varieties, which would hardly be the case were they seedlings. A vigorous rogue producing many canes will in time tend to oust a variety of a weaker growing kind. and this actually occurs in the cases of Superlative, and Norwich Wonder, which in many soils produce only a few canes. Bud sporting from the roots is also a possible cause of the confusion, and it also may be responsible for degeneration, which commonly overtakes certain varieties. Although a complete explanation of the causes for the misnaming of varieties cannot yet be given, the fact remains that it is high time the confusion should be cleared up, and this Mr. Grubb has undertaken side by side with an investigation of the cropping powers of the chief varieties. The results of the latter investigation show incidentally the loss which is bound to attend wrong nomenclature. Thus the average crop for four years of Baumforth's Seedling, described for convenience as seedling B—was 85 per cent. (Pyne's Royal being taken as 100 per cent.); whereas another distinct variety closely resembling it and called Baumforth's Seeding C., yielded only a 58 per cent. crop. Anyone who has grown Raspberries on a large scale must be aware of the way in which their characteristics vary. Hence it becomes of great importance to choose for descriptive purposes characters which are not only easily recognised but fairly stable. Mr. Grubb, after four years' close study, suggests that the surest means of identification are provided by the young, growing canes during June, July and August. They, together with the fruit and characters of the fruiting canes, have proved sufficient for diagnostic purposes.

All known varieties of Raspberry may be separated into two groups, pubescent or glabrous, according to the presence or absence of a dense growth of fine hairs on the new canes. The glabrous canes are shiny and the pubescent canes are dull, and the character is best seen in the young canes by examining them at a few inches from their tips. It is noteworthy that both pubescent and glabrous varieties occur in the wild state. Another character of the new canes which is also useful is the colour of the bases of the spines. It may be that of the cane (pale spined), or conspicuously darker (dark spined). Needless to say, other characters have also to be taken into account, shape of spines; shape, colour and condition of leaf (curled or not); and so on. By these means it is possible to devise a key to the varieties which will serve for working purposes. For the benefit of those who desire to verify the names of their varieties, we append Mr. Grubb's provisional key; but would recommend that his admirable paper, with its full descriptions of all the chief varieties, should be perused in its entirety.

KEY TO VARIETIES OF RASPBERRY.

A. New canes densely pubescent.	
B. Base of spine conspicuously darker coloured than stem; spines short, stout.	
c. Leaves considerably curled, petiole very short	Norwich Wonder. Steele's Victoria.
cc. Leaves nearly flat, petiole long	Lloyd George.
B.B, Base of spine nearly same colour as stem.	
c. Leaves strongly convex or slightly curled	Red Cross.
cc. Leaves nearly flat.	
d. Leaflets large, long, rather narrow, light green	Park Lane.
dd. Leaflets small, broad, rather dark green ...	Red Antwerp B.
AA. New canes glabrous or sparsely pubescent..	
B. Base of spine conspicuously darker coloured than stem.	
c. Leaves much curled, much rugose.	
d. Canes dark purple (except early in season)	Pyne's Royal.
dd. Canes green or pale purplish red	Superlative.
cc. Leaves flattish or slightly curled, often very convex.	
d. Leaflets long, narrow, light-coloured, fruit very acid	Semper Fidelis.
dd. Leaflets not as above, fruit mostly sweet ...	Red Antwerp C. Red Antwerp D. Red Antwerp E. Baumforth's S.B. Carter's Prolific. Fillbasket A. Hornet A. Laxton's Bountiful. Michell's Seedling. Reader's Perfection
BB. Base of spine nearly same colour as stem.	
c. Leaves almost flat.	
d. Canes little glaucous, spines few	Bath's Perfection. Canadian Red.
dd. Canes glaucous, spines usually many	Baumforth's S.A. Hornet B.
cc. Leaves considerably convex	Devon. Profusion.

Presentation to a County Horticulturist.—On the occasion of the recent monthly meeting of the Hexham Gardeners' Society, the lecturer for the evening, Mr. Chas. W. Mayhew, Northumberland County Horticulturist, was made the recipient of an attache-case "as a mark of the members' esteem and appreciation for many valuable services rendered." Mr. Joseph Robson, the venerable head of the firm of Messrs. J. Robson and Son, Hexham, in making the presentation, expressed the pleasure it gave him to do so. He remarked that the recipient, having a whole county to cover, had a busy time, yet was ever willing to oblige them, and carried out his duties with enthusiasm. He hoped the lecturer's services would long continue to be at their disposal. Mr. Mayhew, in returning thanks, said that, when entering upon his duties ten years previously, he realised the difficult task he had in following two such renowned predecessors as the late Mr. Geo. P. Berry, and Mr. Chisholm, now of Edinburgh University. Their gift that evening encouraged him, and indicated that his services were appreciated.

A New Cure for Big Bud in Black Currants.—A provincial newspaper publishes a remedy for Big Bud in Black Currants in which ordinary cart-grease is the active agent. The writer recommends smearing the shoots and buds with ordinary cart-grease, placing the grease in the hand and drawing the latter from the bottom of the branch to the top, taking care to cover the buds as well as the shoot with grease. The most effective time for applying the grease is said to be in the spring, just when a little of the edges of the green leaves can be seen at the points of the buds. It is claimed that the grease makes it impossible for the mites to crawl from the old buds to the new ones. This remedy is apparently only effective in the case of young trees, say, up to five or six years old, and for older specimens it is recommended to thin the shoots drastically in order to obtain strong, fresh growth that can be treated with the grease before the buds on them are badly infested.

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* "A Note on the Impurity of Raspberry Stocks," by N. H. Grubb and G. S. Peren; and "Commercial Raspberries and their Classification," by N. H. Grubb; *Journal of Pomology and Horticultural Science.* Vol. III. 1. Nov., 1922.

The Colorado Beetle.—In view of the fact that the Colorado Beetle has established itself in France, in the neighbourhood of Bordeaux, the Ministry of Agriculture has made an Order, dated December 15, containing certain regulations with the object of preventing the introduction of the insect into this country. The Order, which is entitled the Colorado Beetle Order of 1922, comes into operation on February 1, 1923. It requires that the landing in England and Wales of any living plants or vegetables shipped from France shall only be permitted if they are accompanied by a licence of the Ministry, or by a declaration of the grower or exporter in the form prescribed by the Order, the declaration being to the effect that none of the plants or vegetables was grown in certain named departments of France.

British Mycological Society.—This society will hold a meeting in the Botany Department, University College, Gower Street, W.C., on Saturday, January 20, 1923, commencing at 11 a.m. Dr. W. Brown and Dr. A. S. Horne will discuss "Fusarium"; Mr. J. Ramsbottom, M.A., will lecture on "Berkeley and Broome"; Miss W. Ridler, B.Sc., will discuss "The Fungus Present in Lunularia cruciata," and Dr. H. Wormald will deal with "Crown-Gall in Nursery Stock."

Effect of Moonlight on the Germination of Seeds.—A correspondent in *Nature,* Elizabeth S. Semmens, gives results of experiments conducted by her on the effect of moonlight on the germination of seeds. The investigations showed a greatly increased rate of germination when the seeds were exposed to moonlight, and this is attributed to the fact that at certain periods moonlight is plane-polarised, for an increased amount of hydrolysis was always noticed when polarised light was used. Estimation with Fehling's solution of the sugar produced showed that there was an increased yield of about 15 per cent. caused by the moonlight.

Retirement of Mr. T. Turton.—After a long period of able service, and owing to failing health, Mr. T. Turton is retiring from the charge of the Castle Gardens, Sherborne, Dorset. We are glad to learn that he is receiving a generous retiring allowance from his employer, Major Wingfield T. Digby. Mr. Turton has been particularly successful as a cultivator and exhibitor of fruits, and during his long life he has made a success of nearly every class of plant he has cultivated. A portrait and appreciation of Mr. Turton appeared in *The Gardeners' Chronicle* of July 23, 1921.

Advanced Lectures in Botany.—A course of ten lectures on "The Micro-Organic Population of the Soil" will be given in the Lecture Theatre of the Botanical Department, University College, London, Gower Street, W.C.1, by Sir John Russell, F.R.S., and Members of the Staff of the Rothamsted Experimental Station, at 5 p.m. on February 5, 7, 12, 14, 19, 21, 27, March 1, 5, and 7, 1923. The syllabus is:—Monday, February 5, Sir John Russell, F.R.S., on "Development of the Idea of Soil Population." Wednesday, February 7, Mr. H. C. Thornton, B.A. (Head of the Bacteriological Department), on "Occurrence of Bacteria in Soil—Activities connected with the Acquirement of Energy." Monday, February 12, Mr. H. C. Thornton, B.A., on "Conditions affecting Bacterial Activities in the Soil—Activities connected with the Intake of Protein Building Materials." Wednesday, February 14, Mr. D. W. Cutler, M.A. (Head of the Protozoological Department), on "Protozoa of the Soil." Monday, February 19, Mr. D. W. Cutler, on "Protozoa of the Soil" (continued). Wednesday, February 21, Dr. B. Muriel Bristol (Algologist), on "Soil Algae." Tuesday, February 27, Dr. W. B. Brierley (Head of the Mycological Department), on "Soil Fungi—The Occurrence of Fungi in the Soil."—Thursday, March 1, Dr. W. B. Brierley, on "Soil Fungi—The Life of Fungi in the Soil." Monday, March 5, Dr. A. D. Imms (Head of the Entomological Department), on "The Invertebrate Fauna of the Soil (other than Protozoa)." Wednesday, March 7, Sir John Russell, F.R.S., on "The Chemical Activities of the Soil Population and their Relation to the Growing Plant." The lectures are intended for advanced students of the University and others interested in the subject. Admission is free, without ticket.

Mr. H. J. Jones.—For many years past Mr. H. J. Jones, of the Ryecroft Nursery, Hither Green, Lewisham, has held a foremost position amongst British florists, and has made his name famous in this and other lands by reason of his successes as a raiser and grower of Chrysanthemums, Michaelmas Daisies, Pelargoniums and Phloxes. In his earlier years Mr. H. J. Jones was in business with Mr. Norman Davis, at Camberwell, but eventually the partnership was dissolved, and Mr. Jones set up on his own account. After many struggles and a considerable period of intensely hard work, Mr. Jones built up an extensive business at Lewisham, and at one period he also had a large branch establishment at Keston, in Kent. Mr. Jones has excellent taste in arranging plants and flowers to obtain the best decorative effect, and his success as an exhibitor, both at home and on the Continent, has been due as much to his artistic skill as to his cultural ability. During the course of his business-career, Mr. Jones has won about one hundred and twenty gold medals, and his record for the year 1922 is probably unique, as he was awarded the Gold Medal of the Royal Horticultural Society for Phloxes, on August 9; a Gold Medal for Delphiniums and Phloxes, on September 5; a Gold Medal for Dahlias, on September 19; a Gold Medal and piece of plate for Chrysanthemums, on October 3; a Gold Medal for Michaelmas Daisies and Chrysanthemums, on October 17; a Gold Medal for Chrysanthemums, on October 31; and a Gold Medal and special congratulations from the President and Council of the R.H.S. for the most meritorious exhibit of Chrysanthemums on November 14. In addition to these awards from the R.H.S., Mr. Jones was also successful in winning the Gold Medal of the National Dahlia Society on September 6; the large Gold Medal of the National Chrysanthemum Society, together with the Clay Gold Medal, and congratulations of the officers and committee of that Society, for the magnificent display of Chrysanthemums at the exhibition on November 16. As a lecturer on the cultivation of Chrysanthemums, Mr. Jones is much in demand, and in that capacity he has visited a large number of the principal gardening and Chrysanthemum Societies throughout the country. He is a loyal supporter of the National Chrysanthemum Society, a most useful member of the Committee of the Royal Gardeners' Orphan Fund, and for many years he has had a seat on the R.H.S. Floral Committee.

MR. H. J. JONES.

National Chrysanthemum Society.—The Annual General Meeting of the National Chrysanthemum Society, for the presentation of the committee's annual report and the election of officers, will be held in the Lecture Room, Royal Horticultural Hall, Vincent Square, Westminster, on Monday, February 5, at 6.30 p.m.

Damage to Crops by Rooks.—Shropshire farmers are complaining of the damage done on their land by rooks, and the County Agricultural Committee has decided to ask the Ministry of Agriculture to renew the powers over rookeries given them in war time.

Flower Packages and Flower Packing.—We are pleased to notice that the committee of the British Florists' Federation is adopting an educational, as well as protective, policy, and has arranged for a discussion upon "Flower Packages and Flower Packing," to follow the general business of the Annual General Meeting of members, which will be held at the Connaught Rooms, Great Queen Street, W.C.2, at 3.30 p.m., on Monday, January 29. Mr. Geo. Shawyer, who will open the discussion, probably knows more about this subject than any other grower in the British Isles

Association of Economic Biologists.—The Annual General Meeting of this association will be held at 2.30 p.m. on Friday, January 26, in the Botanical Lecture Theatre of the Imperial College of Science, Prince Consort Road, South Kensington, London, S.W.7. After the business proceedings have been concluded Professor R. T. Leiper, M.D., D.Sc. (London School of Tropical Medicine), will give an address on "The Study of Helminthology."

Prizes for Railway Station Gardens.—In a competition for the best kept station platform gardens on the Midland Railway, for 1922, for which a sum of £400 was offered in prizes, Ockingdon in Essex, and Charfield in Gloucestershire, have been placed first, whilst the stations at Elecar, Yorkshire, and Penns, Warwickshire, have been bracketed equal second.

Legacies to Gardeners.—The late Major Francis Dale Tagart, of Cornwall Gardens, South Kensington, who died on November 24 last, bequeathed the sum of £100 to his gardener, Mr. Binfield, and £50 to Mr. William Newman, gardener of the square in Cornwall Gardens.

Appointments for the Ensuing Week.—Wednesday, January 24: Wimbledon and District Gardeners' Society's meeting; Market Bosworth Horticultural Society's annual meeting. Thursday, January 25: Gardeners' Royal Benevolent Institution's annual meeting and election, at Simpson's Restaurant, Strand, at 2.45 p.m.; Royal Botanic Society's meeting; Wargrave and District Gardeners' Society's meeting. Friday, January 26: Association of Economic Biologists meeting. Saturday, January 27: National Auricula Society's annual meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Reading for Gardeners.* Excellent advice as to the course of study to be pursued by gardeners was given in the Notices to Correspondents for January 8. I may perhaps be permitted to recommend to them, without being considered obtrusive, that most delightful and admirably reasonable, Paley's *Natural Theology.* I do this in the hope that some of those persons who have vegetation in every stage of progress daily and hourly under their eyes may have their minds excited to watch for the creative design of many phenomena which are at present barren of information to us. Gardeners have more opportunities than most scientific men of tracing the mysteries of final causes in vegetable physiology; that is, the end for which a certain structure, etc., has been given to plants; and though they have as yet aided little in building up a much desired system of natural theology founded on facts connected with botany and horticulture, it may fairly be expected that as gardeners become better informed and better trained in the use of their reasoning powers, they will make discoveries commensurate with what, indeed, is justly expected of them as a profession. No doubt there are many little "wrinkles" that are lost to the world in general, either because the possessor of them is deficient of the literary ability to put them clearly upon paper, or sometimes, perhaps, through the want of sufficient liberality to impart what are believed to be secrets of the craft. But it is only by means of these fragments of knowledge that any system, whether of horticulture, physiology, or philosophy, can be erected; and hence, therefore, arises the great value of the *Gardeners' Chronicle*, as a record of many isolated facts, and even minutiae, which, however trifling they may at the first glance appear, are useful, sometimes necessary, to furnish proofs, indications, corrections or contradictions of general principles in natural history. The *Bridgewater Treatises* of Dr. Buckland and Dr. Roget also show the train of thought which I should like to see pursued by gardeners who are anxious to advance their art in a higher as well as a more extended direction. Though somewhat expensive to buy, they are very easy to borrow from book clubs and public libraries. Many masters, I am sure, would assist a studious servant in this matter. Paley's *Natural Theology* may be bought second-hand for a mere trifle, and will occupy and improve many a dull winter's evening. Let it not be supposed that such knowledge is valueless in a practical point of view; on the contrary, it would be of the highest practical use. *D., Gard. Chron., Jan.* 15, 1848.

A RARE EARLY TRACT ON TULIP GROWING.

It may not be generally known that a few copies of Crispijn vande Pas the Younger's *Hortus Floridus* (1614) contain one of the rarest early tracts on Tulip culture. This was issued as four additional pages of text, printed across the narrower width of the oblong-quarto leaves, and accompanied by an engraved plate of a transplanting instrument, either embodied in the text or as a separate plate. It is found in two different versions, Dutch and French, and, considering its early date, is significant in the history of Floriculture. The Dutch version, *Een cort verhael van de Tulipaenen*, etc., differs in some respects from the French one entitled *Traicté compendieux et abregé des Tulipans et de leurs diverses sortes & espeçes, avec vne certaine maniere; comme on les peult semer, planter, & lever, qui est vne chose vtile & profitable a cous ceux quy sont amateurs de telles excellentes fleurs.* In the latter, the "Sonnet," the shorter list of Tulips, and the additional "Register vande Liefhebbers" (amateurs) are omitted, probably as then of little interest to French readers. This list of amateurs is, however, an interesting item; and by comparing it with an earlier list found on the verso of the Dutch letterpress-title of the book, which comprises 32 names of amateurs living in Utrecht, Amsterdam, Haarlem, and Leyden, we can gauge in some measure the success of the *Hortus Floridus* as a book of horticultural interest, for this later list adds to the former 77 names, and includes several towns outside the Netherlands; in addition, unknown amateurs at Weenen (Vienna) and Prague. Another point of difference is that the French version names the inventors of the transplanting instrument: "*les Curieux amateurs & diligentz en telles recherches, Albert & Guillemme de Heuclum.*"

The tract is divided into short paragraphs, the first being headed, "*Apertient á de premier livre en fin du saison printeniere,*" which shows that this tract was printed as a supplement to the additional plates of Tulips in the "Spring" section. It discusses the three kinds of Tulips as distinguished by "*ce tresdocte homme Monsieur Charles de lecluse*" (Clusius), in his books on rare plants; and comments upon their various colours. The second paragraph is headed, "*De la Culture & maniere de planter les Tulipans,*" and gives the kind of soil necessary, not only for raising the Tulips, but also as guarding against the damage done by moles. The Tulips should be planted in good and rich earth (*en bonne terre & grasse*), with which has been mixed the ashes of vine-wood, also tan-bark (*Cendres de boys de vigne avec du ran*). Next is a paragraph, *La maniere de semer la semence des Tulipans*, in which we are told that the seeds should be sown in a suitable wooden box filled with the special earth mentioned above, the box being kept *vis-à-vis* with the sun, and protected from northerly winds. The seeds used should be the pick of one's stock. The next heading is, "*De la nature & proppriéte des Tulipans & de leurs Corruptions*; and here it is stated that, although Tulips are not very abundant in flowers, which are fortuitous, they are, nevertheless, of a hardy enough nature, being very abundant in their roots, which multiply themselves two or three times every year. Therefore, these roots must be guarded, especially from the mole—*vne beste fort dommageable.* Further, precautions must be taken against too much dampness; and that when the flowers have passed, the bulbs must be lifted, and guarded in a dry place.

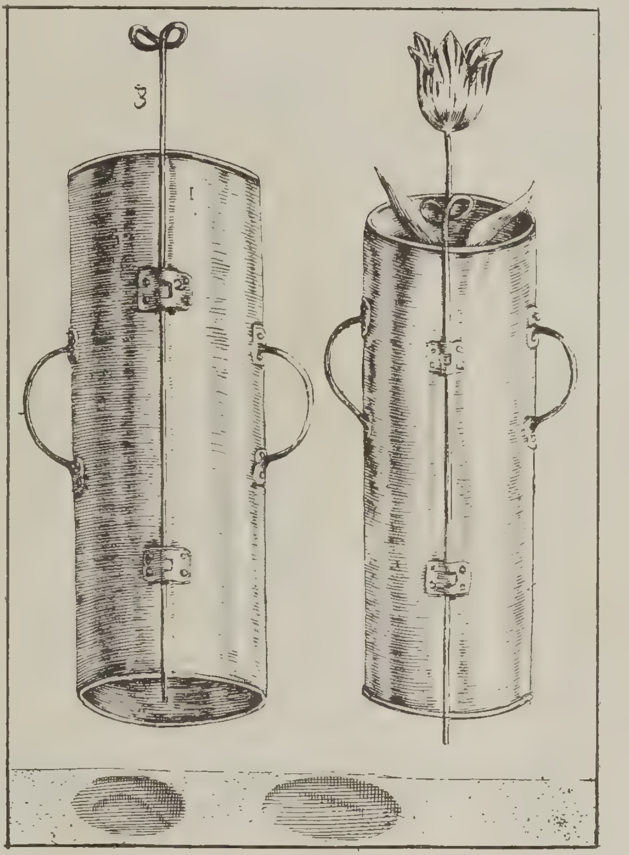

FIG. 13.—AN OLD DUTCH IMPLEMENT USED FOR TRANSPLANTING TULIPS.

This is followed by *Secret pour garder les Raçines desfleurs lesquelles la taulpe menge volontiers*, which consists of the statement that the mole does not like the preparation of special earth, as detailed in the first paragraph! The prescription is repeated here, with the additional information that "ran" is called by the Flemings *run, dont les tanneurs se servent pour tanner leurs cuirs.* The sixth paragraph is headed, "*Contre vn autre acçident arrivant aulx Tulipans*"; and the recipe for the prevention of the killing of the bulbs by maggots and earthworms is to lift the plants and place them, with fine sand around them, in the sunshine for several days, until their preservation is guaranteed.

This ends the second page, and the next page has the engraving of the transplanting instrument (Fig. 13), with the heading—*Necessaire instrument pour replanter toutes sortes de fleurs avec vne facile & tres excellente maniere de retirer vn Tulipan hors de terre sans faire dommage a la fleur.* The fourth page starts with instructions as to the use of the instrument. It is to be forced down below the head of the flower, and until its lower portion is below the bulb and roots; then lifted from the earth with the plant, and transferred to the new place prepared for it by the other instrument of slightly larger diameter (the left-hand one in the engraving); the pin is then withdrawn, and the instrument released. The numbers on the left-hand figure are (1) the brass (or copper) instrument, (2) the clasp, and (3) the pin. Next follows a paragraph—*La maniere de retenir les Tulipans longuement en fleur.* This is of much interest, as it explains why some of the Tulips in the *Hortus Floridus* are depicted with wire supports. To protect the flowers from rain, you are to take some parchment and make *des petits capuchons de grandeur proppres pour couvrir vos Tulipans, puis les ayant attachez a des petitz bastons*, etc. The wires are, therefore, not to support the Tulips, but to act as bases for the parchment hoods to protect the flowers from rain or cold. By this means, it is added, the Tulips will be kept in flower for 12 or 14 days.

The tract ends with a "*Registre des plus estimes Tulipans,*" etc.; some named being among those engraved in the book. Beneath this list the author states that, if there are any Tulips which amateurs will make known to him, he hopes in time to illustrate them. (So far as is known, this promise remained unfulfilled, our author becoming Professor of Art at the Maneige Académie, Paris, about 1617, and accomplishing most excellent work in other subjects.)—He ends: *Avec cecy ie vous offres mon œure [sic] vostre Treshumble Crispian vande Pas le Jeune.* The Dutch version ends more briefly—*C. v. de Pas altijts vroet* (always true). *S. Savage.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Cypripedium.—Cypripediums which produce green and white flowers at this season are in great demand, as they adapt themselves to all decorative purposes. At one time the slow-growing C. Lawrenceanum Hyeanum, and C. callosum Sanderae were only available, with the much slower C. venustum Measuresianum which no one so far appears to have made a success, and is seldom seen. At a more recent date came C. Curtisii Sanderae, with the result we now have hybrids raised between the three species named, and they have also been crossed again with some of the progeny of the earlier hybrids. The result is we possess a most beautiful and interesting family of plants. In C. Maudiae is one of the most useful for all purposes, being a plant of easy growth, and, if well grown, almost continually in flower. The later hybrids will perhaps when better known rival this well-known plant. They are all of vigorous growth and produce their flowers at different seasons; in fact, the beautiful flowers of these albino Cypripediums may be enjoyed nearly the whole year round. Amongst the most free-flowering may be classed C. Alma Gevaert, a secondary hybrid with C. Maudiae as one parent, and C. Lawrenceanum Hyeanum the other. C. Holdenii is another hybrid from C. Maudiae, also the new C. Emerald, and C. Warden, whilst C. Enchantress has C. Alma Gevaert as one parent, C. Curtisii Sanderae being the other.

Tesselated Leaved Cypripediums. — These plants not only have beautiful flowers, their foliage is also beautiful, and when not in bloom claim attention on that account. The cultivation of these tesselated leaved Cypripediums differs somewhat from that for those which have green leaves, as they resent the addition of loam in the compost used as a rooting medium. Some growers use Sphagnum moss only with good results, but I prefer a clean compost made up of peat, A.I. fibre and live Sphagnum moss in equal parts. The plants should be potted firmly, and placed in small receptacles, according to the size of the plants, as an over-potted specimen never makes much progress. These Orchids may be repotted immediately they have passed out of bloom, and if the cultivator desires to increase his stock the plants may, at this season, be divided. I am fully assured that many who fail with these delightful Cypripediums subject them to too much heat, and do not give them sufficient fresh air. Thrip is the chief enemy of all tesselated leaved Cypripediums, and every precaution must be taken to prevent an attack, as the pest not only disfigures the delicate foliage, but seriously injures the plant.

THE HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Loganberries and Raspberries.—The supports on which these fruits are trained should be examined and repairs made where needed. In the case of Loganberries they should be 8 feet to 10 feet high and sufficiently strong to withstand high winds. In making new plantations of either of these fruits select a moist soil as they need a cool rooting medium in summer, but plenty of sunshine to ripen the berries.

Spraying.—With the completion of pruning, opportunities may be found in quiet weather to spray orchard and other trees. Winter spraying will effectively reduce fungi, mosses, and lichens and many forms of dormant insect life. There are several good proprietary washes on the market. It is very important that every part of the tree is sprayed, and to be effective the nozzle of the spraying apparatus should be capable of giving a fine cloudy spray. Varying sizes of aperture caps are provided on modern machines to suit different fluids. Applied by an intelligent workman, there should not be undue waste of fluid. It should be the aim of the sprayer to wet every part of the trees without allowing it to drip. Care must be taken in handling caustic washes; a suit of overalls or oilskin and rubber gloves should be worn. Grease bands should still be renewed with grease when necessary. Where Woolly Aphis is prevalent, those that are hibernating should be looked for at the base of the trees. It may be necessary to move the surface soil and burn it. Methylated spirit is an effective means of destroying this pest on the trees; the spirit should be well worked in with a brush. Gishurst Compound is also effective as a winter dressing for fruit trees.

Fruits in Store.—Apples and Pears in store should be carefully examined. These fruits are keeping much better than was expected. Ventilation, even temperature, control of light, and the removal of defective specimens are the main needs in securing a continual supply of these fruits over a long period. Cemented floors may need an occasional damping to ensure sufficient atmospheric moisture.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Cannas.—These plants, when grown in 6-inch or 7-inch pots, are very useful for the decoration of the conservatory during the summer and autumn. The present is a suitable time to start an early batch. Strong rhizomes should be selected, trimming off the old roots, and, if necessary, a portion of the old rhizome, so that the selected crown can easily be placed in a 48-sized pot. As Cannas are gross feeders some dried cow manure should be added to the potting compost. Stand the pots in a house having a temperature of 60° to 65°, and give the plants very little water until they make fresh roots and have started into top growth. When they have filled their pots with roots they should be shifted into receptacles 6 inches or 7 inches in diameter. Use a very rich compost for the final potting, and when they have filled their pots with roots, water the plants twice a week with dilute liquid manure and soot water. All growths, except the strongest one, should be cut out. For this method of cultivation it is necessary to select suitable varieties, such as J. B. Van der Schoot, Elizabeth Hoss, President Meyer, A. Bouvier, Oiseau de Feu, Frau E. Kracht, R. Wallace and Queen Charlotte.

Forsythia intermedia var. spectabilis.—This, the finest of all the Forsythias, is an excellent subject for forcing, and can easily be had in flower at Christmas. It produces its deep, golden-yellow flowers in wonderful profusion, and the blooms remain in good condition for several weeks in a cool conservatory. A stock is easily raised from cuttings lined out in the nursery during October. Forced plants also afford a ready means of increase, as the young shoots of these, about 4 inches in length, will root readily in a close case. When this fine plant becomes better known it will doubtless be used largely for forcing purposes.

Rhodochiton volubile.—There are numbers of useful and beautiful climbers that may be raised from seed, and the plants will flower the same season. Of these, Rhodochiton volubile should be sown now. The seeds of this plant are very thin and flat, therefore they should not be covered very deeply, as they are apt to rot. They should be germinated in a warm propagating house. The seedlings should be potted on as they require increased root room; as they get larger they will do well in a warm greenhouse, training the plant to strings under the roof glass. Good specimens may be grown in eight-inch pots. After their final potting the plants should be removed to the conservatory and trained to wires or rafters. Plants put in a well drained border make fine specimens the second year. This Rhodochiton may also be propagated by means of cuttings.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Asparagus.—Where this vegetable is in demand, preparations should be made for forcing the crowns in frames, on a hotbed or under the stage of a warm greenhouse, or, more suitable still, in a pit furnished with one row of water-pipes around it. If the last is chosen, place some leaves and straw litter on the bottom, and cover the bed with 6 inches of fresh, light soil. Forcing crowns may either be purchased or lifted from the garden beds in the garden. Place them thickly together and cover them with 3 inches of the soil. Water them freely with tepid water. Admit a little air during the morning, but close the frame again in the afternoon after damping the beds over with a syringe. Do not allow the temperature to rise too high, or the growth will be weakly. To maintain a regular supply, plant fresh crowns for a succession about every fortnight, making use of cold frames on hotbeds for these. Forced Asparagus is not quite so good in flavour as that grown out-of-doors; nevertheless, it is very acceptable at this season. The roots are of no value after forcing, and should be discarded.

Potatos.—Some of the early varieties of Potatos are well suited to produce crops under glass. Medium-sized tubers may now be selected, stood on end in shallow boxes in a little sifted leaf-mould, and placed in a frame or greenhouse to sprout. Large pots or boxes may be utilised for the earliest crop, as these may be moved about at will. Crock the pots carefully, and place some turfy loam over the crocks to ensure efficient drainage. A compost consisting of two parts loam broken up small, one part leaf-mould, and one part old Mushroom or hotbed manure, with a sprinkling of wood ash and soot, will suit admirably. Half fill the pots with this compost, place three tubers in each receptacle, and cover them with the soil, leaving room for adding a little fresh soil later. Make the soil fairly firm, and stand the pots in a vinery or Peach house that has just been started. Do not water the tubers too much until they are in active growth, and then only when moisture is necessary. The same remarks apply to Potatos planted in frames, except that the tubers should not be planted so closely; in this case they need to be set one foot apart. The frames should be aired as required in order to allow moisture arising from the bed to escape. Protect the frames at night in the event of frosts occurring. The damp arising from the bed will provide sufficient moisture for a time, but, as the plants gain in strength, they will require watering and top-dressing with suitable soil. Midlothian Early, Sharpe's Express, and May Queen are all suitable varieties for forcing.

Carrots.—Make a sowing of a small variety of Carrot, such as Inimitable or Early Gem, in a frame over a hotbed. Nearly fill the frame with finely sifted soil, make the latter fairly firm, and then sow the seed in drills made 6 inches apart. Cover the seeds with half an inch of soil and water them with a rose can. Cover the frame with a mat until the seed has germinated, then allow the seedlings to enjoy all the light available. Admit a little air, but close the frame early in the afternoon. Do not thin the plants too severely; rather draw them out as required, leaving the remainder to develop. Make another sowing of stump-rooted varieties in a pit, if one is available, to provide a succession of roots.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Successional Vines.—To provide a succession of fruit a vinery which has been thoroughly cleansed and prepared should now be closed. If the vines have for some years past been started early in the New Year, there need be no difficulty about the rods breaking satisfactorily into growth. Use sufficient artificial warmth to maintain a night temperature of 45° to 50°, allowing a slight rise during the day.

On bright days syringe the vines early in the afternoon, closing the ventilators prior to doing this; the amount of atmospheric moisture should be governed by the weather. Should any of the vines have young rods, bend these down to assist the buds to break throughout the whole length of the rod.

Pot Figs.—The most favourable means for starting pot Figs is a mild hot-bed of leaves with a slight admixture of short dung. The materials should be well blended and sweetened before introducing the Figs. The pots should be stood on bricks or inverted pots, and then packed about with the fermenting material. Figs may be started in a slightly higher temperature than that afforded Peaches or Vines; a night temperature of about 50° with a corresponding rise by day will be suitable. In the early stage of forcing, atmospheric moisture should not be excessive, and the use of the syringe should be governed by the weather. Once they have started into growth, never allow the plants to suffer for want of water. Admit air on all favourable occasions, to keep the shoots firm and growing steady.

Cucumbers.—Young Cucumber plants raised from seed sown now will make rapid progress with the advent of longer days, provided they are grown in a light house or pit with plenty of heat at command. Sow the seeds singly in small pots filled with fresh loam, leaf-mould and sand. Place the pots in a propagating box furnished with bottom-heat that will maintain a temperature of 70° to 75°. Fermenting material should be prepared for making up the hot-bed when required. Plants which are fruiting will require considerable care and attention during the next few weeks. The atmosphere should be kept moderately moist by damping the pathway and other bare spaces more or less frequently according to the weather; a stagnant atmosphere is harmful to the plants. Water the roots occasionally with weak liquid manure, and lightly top-dress them with a rich compost. Stop and tie the shoots when necessary, allowing ample space for the full development of the foliage. The temperature should be about 65° at night with corresponding rise during the day.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Filling Gaps.—Occasionally a plant or so dies among those bedded out for spring flowering, or may be eaten off by a stray rabbit, as has been the case here with plants of Cheiranthus Allionii, to which rabbits seem partial. Given future protection, the rabbit-bitten plants often grow up afresh, but vacancies caused by dead plants need to be made good. The recent heavy rains have tended to "set" the surface soil among these flowers, which condition can be remedied by slightly pricking up or hoeing the ground.

The Shrubbery.—Where, for unavoidable reasons, any necessary pruning or thinning of shrubs has not been done, the grower should make every endeavour to complete the work this month, before plant life gets more active and pressure of other matters precludes the necessary labour. When the work is finished the ground between the shrubs should be dug over just deep enough to bury the coating of fallen leaves lying about the plants. Where leaves from other sources have drifted among the shrubs too deeply to enable them to be buried, a portion should be taken away, but leave a reasonable layer, as when dug in the leaves will help to replenish that constant draining of the soil made by established shrubs. Old shrubberies are sometimes so permeated with surface roots that the digging in of such material is out of the question, in which case pointing the surface with a fork is best, then spreading a covering of soil over the whole surface to keep the leaves from blowing about and to hasten their decay. These details of culture and tidiness refer, naturally, to those shrubs grouped in conspicuous places and requiring more or less regular care and assistance. In only a few gardens is it possible to treat the big shrubbery portions of pleasure grounds in this way, but so long as the leaves are not likely to be a nuisance in blowing about they should be left to gradually rot where they lie—thus producing an upper tilth of soil in which those delightful spring flowers, Primroses, Violets and Wood Anemones can be planted and naturalised in profusion.

Humulus Lupulus.—The quiet beauty of this hardy climber towards the end of summer is a pleasing change after the gay riot of colouring of the borders. It is equally at home on the arbour or pergola, or scrambling up among boughs of trees, from either of which positions the pale green clusters can depend to better advantage than when secured to an upright support. In these gardens two strong Hops come up annually at the back of herbaceous borders, entwining their growths over and among the boughs of a Yew tree. Its hardihood allows the Hop plant to grow almost anywhere, and all open weather between autumn and early spring is favourable for planting.

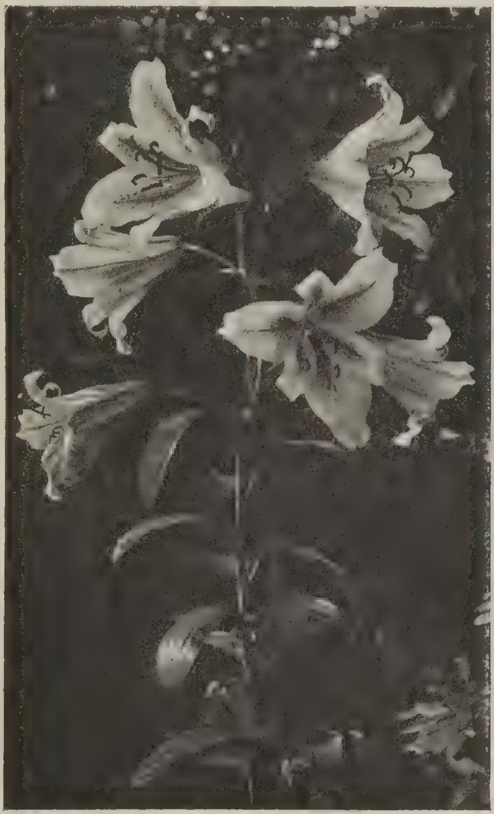

Fig. 14.—Lilium auratum var. platyphyllum.

Shrubby Spiraeas.—Being about to prune some of these plants prompts me to commend their value for planting on lawns or borders that are on the moist side. Weather permitting, planting may be done at the present time and, to give the best effect, the practice of grouping several plants reasonably near together should be adopted, rather than isolating a plant here and there. For small gardens a single specimen may be sufficient in a given place, it being totally unwise to crowd several together for the sake of having a group. A good half-dozen Meadow Sweets are Spiraea ariaefolia, S. Lindleyana, S. salicifolia, S. Douglasii, S. canescens and S. japonica Anthony Waterer—this last variety being dwarf and suitable for growing in the herbaceous border, where its roots will not get dry in summer.

Helleborus foetidus.—Owing to the mild weather the flower scapes of this plant are fast unfolding in the woodlands, in the semi-shade of which it does well. The flowers of this species are small, dull green and unpleasant to smell, but the foliage is very handsome, and for this alone it is worthy a place in the wilder parts of the garden. The fact that it commences to grow early, when there is little of other vegetation moving, adds to its interest for garden effect.

THE BULB GARDEN.

LILIES FOR PLANTING IN JANUARY AND FEBRUARY.

Of all plants, bulbous and otherwise, there are few, if any, so pure in colour, so graceful or attractive generally as the true Liliums. Those who are at all familiar with Lilies, also those unfamiliar, cannot do better than plant them in borders or beds, or interplant them in herbaceous and shrubbery borders. Indeed, Lilies may be advantageously used in many places for producing colour and effect, including Rhododendron or Azalea beds, or amongst other low-growing shrubs.

All Liliums delight in plenty of root room; they need a good depth of soil, into which their roots can ramify, and a layer of well-rotted manure should be spread over the surface. After making the hole, place the bulb on coarse silver sand, and surround it with sand before finally filling in the soil.

The majority of Lilies will thrive in a good, porous, loamy soil, mixed with a fair proportion of coarse sand.

Plant the bulbs from 4 to 6 inches deep, according to their size; deeper planting may be resorted to on well-drained, light soils. The purpose of deep planting of the bulb is to sustain the plant until root and leaf development is sufficient to maintain it in growth.

The following is a list of species and varieties suitable for planting during the present month and next month :—L. auratum and its varieties, rubro-vittatum and platyphyllum (see Fig. 14); L. Batemanniae, with flowers of a rich Apricot colour; L. Krameri, a pretty sade of rose-pink, a most beautiful plant when grown in pots for conservatory decoration; also L. longiflorum (the Easter Lily), with snow-white flowers that are greatly in demand at Easter; it is a free-flowering plant and well adapted for forcing.

The members of the L. speciosum group are all easy of culture, and worthy of prominent positions in the border, or shrubbery. Of these the variety Melpomené is most vigorous and exceedingly handsome. The large, deep crimson flowers are heavily spotted and the plant is equally effective in pots as in the border. L. speciosum album Kraetzeri has snow-white flowers with a greenish mid-rib; it is a very handsome Lily, as is also the variety album novum, which has snow-white flowers.

L. Henryi is effective when planted among fairly tall-growing shrubs. This Lily attains to a height of 6 to 8 feet and bears numerous, orange-coloured flowers. L. pseudo-tigrinum is a very free-flowering Chinese species, with handsome, orange-scarlet flowers, prettily spotted with crimson. It flowers in August. L. sulphur-gale, a hybrid, is for effect and freedom of flowering one of the most valued for garden decoration. The plant grows from 3 feet to 5 feet tall, and bears numerous large flowers. The predominant colour is white, with a conspicuous sulphur base, and the blooms are delightfully scented. L. Wallacei has flowers of a pretty Apricot colour, and is a graceful plant.

All the forms of L. davuricum are effective in the border, growing from 2 feet to 3 feet high, and with flowers in shades from orange to crimson. It is most valuable for cutting. The varieties of L. elegans or Thunbergianum are invaluable on account of their showy flowers and dwarf stature, for the plants do not exceed a foot or 15 inches in height. They are exceedingly hardy, and bear large flowers. Of this Lily the best varieties are Prince of Orange, clear orange flowers; alutaceum, a pretty Apricot shade, with black spots; marmoratum aureum, with well-expanded Apricot-coloured flowers, freely spotted with black; sanguineum, reddish crimson, very early, bearing flowers in abundance; biligulatum, a variety of vigorous habit, producing deep orange-coloured flowers flushed with red. It is a fine Lily for pot culture.

L. tigrinum is one of the most extensively cultivated of all Lilies, and perhaps the most showy. It will grow to a great height, producing a large number of flowers. The varieties splendens and Fortunei are single; the double form is also worthy of a prominent position in gardens. *W Logan.*

CULTURAL MEMORANDA.

FREESIAS.

Apparently the usual method employed in the culture of these modest and fragrant flowers is to order so many bulbs from a reliable source, place nine or ten in a 48-sized pot, bury the latter in ashes or leaf-mould for about six weeks, take them from this, and if not weak enough already allow the plants to partially dry off before watering the roots.

A better method is, having obtained good bulbs and potted them in a moderately rich compost in August, never to allow them to suffer from drought. Shade the pots heavily in a cold frame for three or four weeks, then watch closely for the appearance of the tender points of the leaves. Immediately they show expose them to full light, and as soon as they attain the height of one inch, commence to feed the roots once a week with very weak liquid manure and slightly increase the strength as the plants make headway. As soon as the shoots have grown about four or five inches high place five neat stakes in the pot to prevent the shoots and leaves breaking down.

When in flower, if a few specimens are required for the house, it is a good plan to take three short pieces of Bamboo, and having inserted four or five thin wires, place them between the foliage, spreading the wires slightly, make small hooks at the top of the wire to hold the slender stems. Such supports will be almost indiscernible. Having brought the plants through the flowering period, they are generally placed out-of-doors, if retained at all, to take care of themselves.

The better method is to build up stout bulbs by continuing to feed the plants on a cool, airy shelf until the foliage shows signs of fading, say, well into April. Then gradually dry and eventually bake the bulbs in the sun until August, when they will be found far superior to those that are purchased, and will if generously treated, produce flower-spikes with three to five branches. *D. G. W. P. B.*

HOME-GROWN LILY-OF-THE-VALLEY.

Many people are under the impression that Lily-of-the-Valley crowns suitable for forcing cannot be grown profitably at home, either grown under glass or otherwise; but this is not so. I am aware it is not everyone that has suitable soil. When having the charge of a large garden in the West, I cultivated this plant extensively, both in pots and in the open. The soil was loam, with a clay subsoil, and the garden situated in a valley. Each year we lifted a fourth part of the stock, planting the same amount about the end of October—that is, four-year-old plants were dug up in big clumps and placed where they could be sorted readily on a wet day. The strongest crowns were planted in pots, others put into boxes to flower in a frame just before those in the open beds were ready, and the small ones labelled, tied in bunches, and plunged in soil ready to plant in spring. These last were planted in deeply dug and lightly manured soil between bush Apple trees which were 20 feet apart. When the soil was dry, they received a soaking of water. The following season they needed no attention, but, when three years old, the plants received a dressing of old hot-bed manure. The fourth season they were given two or three soakings with manure water. Where the plants were too close together, the weaker ones were pulled out to give the strong ones more light and air. The chief point is to obtain strong crowns with an abundance of roots. If strong crowns are planted, they should be strong enough to force the third year, but I prefer them at the fourth season. When they are selected, care should be taken to obtain the largest amount of roots, as on this much of their success depends. This past season, some crowns sent from a private garden in the West had such a large amount of roots that I could only get nine crowns in a 5-inch pot. The young ones I am planting are equally well rooted. Needing crowns for very early forcing, I put a limited number on a warm, sunny border. These started into growth three or four weeks earlier than those amongst the Apple trees. In dry weather they needed a quantity of water and feeding; these crowns ripened correspondingly early and forced early in proportion. In the open, many growers fail in the culture of Lily-of-the-Valley through allowing the plants to remain too long in the same bed. When the foliage is crowded, the plants get insufficient air and light, and, added to this, they become starved at the roots. *J. C. F.*

THE ALPINE GARDEN.

PAPAVER ALPINUM.

This is a fascinating little Poppy, and a group of plants of mixed colours is a sight which calls forth the enthusiastic admiration of the lover of rock plants, although the plants do not possess the variety of tints shown in the new varieties of P. nudicaule. The plants are generally raised from seeds bought in mixed packets, so that the purchaser will secure flowers varying from white through yellow to orange.

The foliage is exquisitely divided and of a pretty glaucous tone, and the whole plant is only a few inches high, appearing like a highly refined Iceland Poppy of miniature stature. It is raised easily from seeds, and I prefer to sow these where they are to flower, sowing very thinly, and thinning the seedlings to about three or four inches apart. When the plants are small they will transplant well.

It is rather unfortunate that P. alpinum does not sow itself like P. nudicaule, which comes freely from self-sown seeds in many gardens. I was discussing the point with a grower of P. alpinum the other day, and found that my own experience was the same—that P. alpinum does not seed well in some places, the seeds either failing to form or not ripening in good time. Possibly the comparatively moist nature of the climate of the particular district had something to do with this. Seeds of fringed varieties were offered under the name of P. alpinum fimbriatum, and I grew these for two seasons, but did not appreciate them more than the others.

P. pyrenaicum is understood to be a still more miniature form of this Poppy, and is a charming little plant. P. alpinum seems a perennial, but may be lost after flowering for a few years, probably through the asperities of the winter months. A dry, sunny, rock garden should be chosen for the Alpine Poppy.

MESEMBRYANTHEMUM UNCINATUM.

Few indeed of the Mesembryanthemums, or Noon Flowers, are absolutely hardy, but I consider that M. uncinatum may be regarded as trustworthy in the open in almost any part of Great Britain and Ireland, except, perhaps, in the case of an almost arctic winter.

I remember losing a good plant which had been established for a few years, one winter, but that was one of even more than unusual severity and one which tried beyond endurance the resisting powers of many plants, always reputed to be much hardier than any of the Noon Flowers. So I feel satisfied that M. uncinatum may be planted with impunity on sheltered warm rock work in gardens in the greater part of the British Isles. It must not, however, be confused with M. uncatum, which I have not found hardy.

M. uncinatum is in every way very distinct from the ordinary rock plant. It is of shrubby growth, almost erect in habit, and from one to two feet high after being established for some time. It has many three-cornered, succulent leaves, rather hooked in form, whence the name uncinatum, which means hooked-leaved, and bears in August, when it blooms, red flowers of moderate size. It seems a shy bloomer and should have the sunniest place at command.

It has been well said that the Mesembryanthemums are children of the sun, and M. uncinatum is not an exception, delighting in the hottest, sunniest places available, and only there displaying its real value. As a quaint-looking plant, it may be added to the rock garden with every prospect of giving interest. *S. Arnott.*

HARDY FLOWER BORDER.

GERANIUM ATLANTICUM.

This still appears to be a somewhat uncommon species in our gardens, but it is distinct and not difficult to grow in suitable conditions. It is an entirely herbaceous plant in the sense that its foliage of finely-cut leaves, closely resembling those of our common Wood Anemone, die away in summer after flowering is over, to reappear with the rains of autumn. These leaves grow to about the same height as those of the Anemone and, like the latter, will form a close-set carpet of delightful green. From amid these the upright flowering stems rise to about one ft. in early summer, and produce violet-blue, red-veined flowers of rather more than ½-in. in diameter. G. atlanticum seems to resent moving, but it would probably not do so were the planting done immediately the foliage has withered. With us it prefers a rich, deep woodland loam, with a westerly aspect, and enjoys a plentiful supply of moisture up to the flowering stage, and a good baking afterwards. A freely drained soil is, therefore, desirable, but some plants put in a very gritty, unretentive soil years ago have never flowered, nor have they increased. *A. T. J.*

TREES AND SHRUBS.

RAPHIOLEPIS DELACOURI.

This is an interesting and attractive shrub of Continental origin, said to be a hybrid between R. japonica (ovata) and R. indica (salicifolia). If this is correct, and the foliage certainly suggests it, the rosy-pink colour of the flowers is phenomenal from parents, one with pure white flowers and the other with white flowers tinged with pink towards the centre.

R. Delacouri is an evergreen shrub with broadly oval, dark green, leathery leaves. The rosy-pink flowers are freely borne at the ends of the shoots in an upright panicle, 3 inches or more in length. A most valuable trait of this shrub is the length of the flowering season, extending from spring until late autumn; in fact, established bushes growing in the south and west in a few years' time will probably be seldom without flowers. In common with the better-known parent R. japonica, the hybrid is a very useful shrub for a sheltered border. In the colder districts the shelter of a south or west wall is necessary.

In addition to the very lengthy flowering season, cut sprays of R. Delacouri last splendidly in water for a month or more. Though less hardy than the other two, the Indian Hawthorn, R. indica, is an interesting shrub for the cold greenhouse. *A. O.*

STRANVAESIA UNDULATA.

The leaves of the specimens of this shrub, exhibited at the meeting of the Royal Horticultural Society on December 12, 1922, by Lionel de Rothschild, Esq., are much narrower than those of specimens I have seen from the garden of Lt.-Col. Sir George Holford, K.C.V.O., Westonbirt, Tetbury. The lower leaves of a bush then fruiting splendidly are wider by a third than those shown; while those near the corymbs of bright red fruits are shorter, and some of the leaves preparing to fall have red and bronzy metallic-looking tints, heightened by their glossy upper surface. The persistent sepals of the Himalayan species are said to be erect, but in the fruit of this they are closely folded over the top, enclosing the filaments which project through the sinus between every two, as well as between their tips around the persistent base of the style. When these sepals are folded back, the fruit recalls a Medlar with its open top; but the structure is very different. The opening reveals a pale red capsule within, for such it must be called, since it is only half adnate to the receptacle, and dehisces by five valves. This is another of the many disguises which the Rosaceae assume, when the receptacle surrounds the true fruits, and is more or less adnate to them. The endocarp here is merely crustaceous and leaves the seeds quite free in each of the five cells. *J. F.*

ORCHID NOTES AND GLEANINGS.

BIG CYPRIPEDIUMS.

MANY readers who saw the fine exhibit of new Cypripediums which G. F. Moore, Esq., of Chardwar, Bourton-on-the-Water, exhibited at the meeting of the Royal Horticultural Society on December 12, must have been astonished at the immense size of the new hybrids in his wonderful group. One of these, Cypripedium Chrysostom var. Amy Moore, is illustrated herewith, Fig. 15, and the reproduction shows the flower life size. Mr. Moore informs us that he has flowered several other varieties from the same pod of seed that produced the variety figured, and as regards beauty he prefers several of these to the monsters which caused so much astonishment at Westminster.

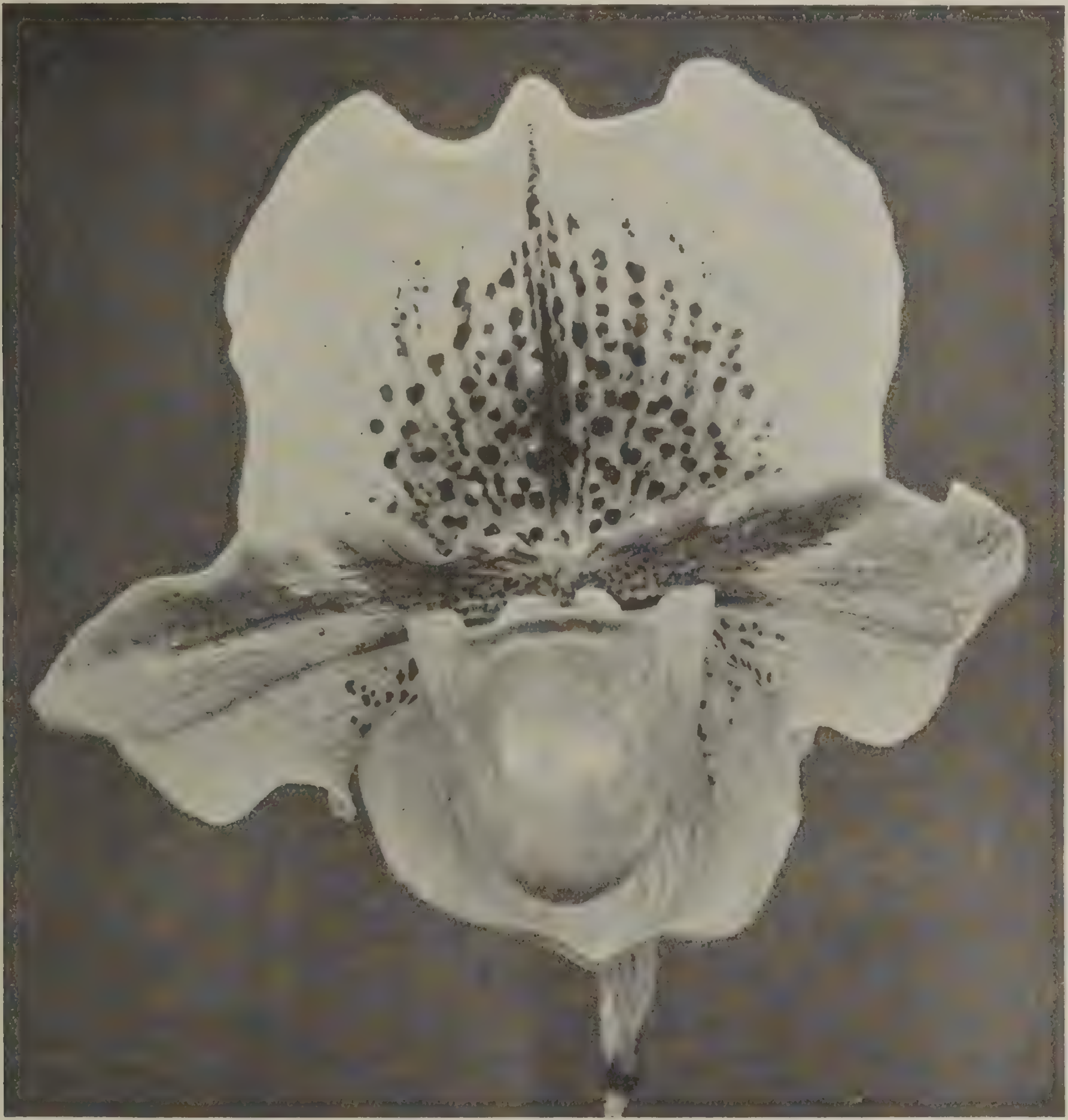

FIG. 15.—CYPRIPEDIUM CHRYSOSTOM VAR. AMY MOORE; LIFE SIZE.

Cypripedium Leeanum giganteum crossed with C. insigne magnificum gave C. Florence H. Cann, which was certificated in 1905. By crossing C. Florence H. Cann with C. Leeanum var. Corona the handsome C. Christopher was raised, and by crossing C. Christopher with C. Hera-Mostyn the wonderful race was evolved which has the name of C. Chrysostom. On December 12 Mr. Moore exhibited the results of four different crosses of C. Chrysostom, and in each case the shape of the flowers was excellent, and it is his belief that the progeny of C. Christopher will revolutionise ideas concerning Cypripediums with regard to shape and size, so that in the course of about ten years a Cypripedium with a reflexing dorsal sepal will not be found in the best collections. The bright green and pure white colouring of this new race, together with the deep purple spotting and the large development of the ventral sepal, make this new race very attractive, while in the matter of size and substance they exceed anything hitherto raised.

ANGRAECUM MIRABILE.

THE note and illustration of Angraecum mirabile (?) in your issue of January 13, interested me very much. In 1916 I collected in Uganda an Angraecum exactly resembling in appearance and description the subject of the note. I sent a dried specimen, and I believe a photograph, of the plant to Sir Frederick Moore. Sir Frederick sent my specimen to Kew (E. Brown, 486), and it was named Angraecum rhodostictum. The description in my field note book reads:—"Flw. white, column red, a very pretty plant, on very small twigs." Unfortunately, I have lost my negative of the Orchid, and I have no print. Probably the print I sent to Sir Frederick was sent by him to Kew with the specimen, and I think if these are compared with A. mirabile (?) it will be found that the Uganda and West African plants are identical. It is really remarkable how many Orchids seem to crop up in this country from these two places at almost identical times. I remember other instances.

It will be seen that at the time of collecting I noted the occurrence of the plants on very small twigs. This is very unusual among Orchids, and means that they cannot be older than the twig on which they are found. As my Angraecum was found in flower on twigs little more than a year old, it is evidently a quick flowering plant. All the plants I saw consisted of only one growth, and I even formed the opinion, which I believe I expressed to Sir Frederick Moore, that the plant might prove to be an annual. Anyhow, the plant died out that year in the spot where I found it, and I also lost all the plants which I tried to establish in my garden with the object of bringing them home with me. I may add that the occurrence of the colony of plants in 1916 was sporadic. It was within a few feet of a saw-mill I was in charge of, and used to visit twice weekly, growing on a bush overhanging the water. Should the plant illustrated in the *Gard. Chron.* (Fig. 7) prove to be A. rhodostictum, it will be interesting to me to learn if it survives after flowering. *E. Brown, Doddington.*

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MYSTERY PLANTS OF UGANDA.

A LITTLE experience in botanising in Africa soon teaches one that the native garden is a fruitful field for investigation. The native is not addicted to ornamental gardening, but he has a curious habit of leaving, when weeding his plots, any unusual plant which may have sprung up. As a rule, of course, the plants found therein are found wild near by, or not very far away. As might be expected, however, the semi-cultivated specimen is very often found in flower when its wild prototype is not in perfection. A complete specimen is often to be obtained in this way.

The five plants mentioned below as being obtained in this way are of litttle importance horticulturally; only the Ipomoea would prove an acquisition to our gardens, but a study of them, and their affinity botanically and geographically, may provide a basis for a theory which may account for the puzzling distribution of many African plants.

Ipomoea Grantii palmata pinnata.—A strong climber with large, handsome leaves. These are dark green, with yellow veins which show through and give great beauty to the leaf. Flowers pink in colour. This plant was seen in a Banana garden in 1905. I never met with it again. It is such a striking plant that I would not have failed to notice it elsewhere.

Euphorbia implexa.—A plant of this was found in 1905 in a native garden. It was not in flower, so I transplanted a portion of it in the Botanic Gardens, Entebbe, where it flowered a few years later. It proved to be a new species and was named by Dr. Stapf. It is near E. Tirucalli, but more pendant in habit, and dwarf in growth. I never found this plant again.

Ceropegia Brownii.—This plant was found in 1908, but not in a native garden; it was obtained at the foot of a famous stone (Fig. 16). This stone is pear-shaped, and stands on its thin end. It stands high on the top of a rocky kopje, and everyone coming in sight of it feels impelled to go up to it and try to push it over. It weighs several hundred tons. The stone is associated with many native legends, and doubtless rites in which the Ceropegia figured have been practised there. The plant grows nowhere else that I know of, certainly not on that kopje, although there are hundreds of places equally suitable. I believe it is the only Ceropegia found in the Lake region. It is allied to a Mozambique species. Mr. W. Ledger, of Wimbledon, to whom I sent roots, flowered and described it in 1909 as a new species.

Stapelia Dummeri.—In 1904 a Stapelia was found in a native garden. It was planted in the Botanic Gardens, Entebbe. When I left there in 1908, it had not flowered, so I took a piece with me. I continued to keep a plant of this in my garden wherever I moved to, and eventually, in 1918, flowers were obtained. I gave some to Mr. Dummer, who sent them home, and it proved a new species. It is the only Stapelia found outside of South Africa. The fact of it flowering so infrequently proves it to be out of its habitat. I never saw it again wild.

Pancratium sp.—A small-growing species of Pancratium, unlike the previously-mentioned plants, is very common in native gardens. I do not know the species, but as I sent bulbs to Kew in 1919, doubtless it has been determined. The plant has leaves 6 in. long and grasslike. Bulb less than 1 in. across. Flower solitary, 9 in. high, white in colour and large proportionately to the leaves.

It will be noted that of the five plants, four were found in native gardens, where they enjoyed, at least, semi-cultivation. The other occurred under such circumstances as to leave little doubt that it had received attention to establish it.

Four of the plants were found once only. I heard of no uses for them, and apparently they are not of service to the natives to-day. The other, the Pancratium, on the other hand, is largely cultivated, and I found the reason to be that it has a present-day use. A decoction made from it is used by persons involved in litigation, to help forward their suit. I could not discover in what way it was taken. None of the five plants was found wild, and I am fairly certain they are not natives of Uganda, if, indeed, they are of Central Africa at all. How, then, came they in this country?

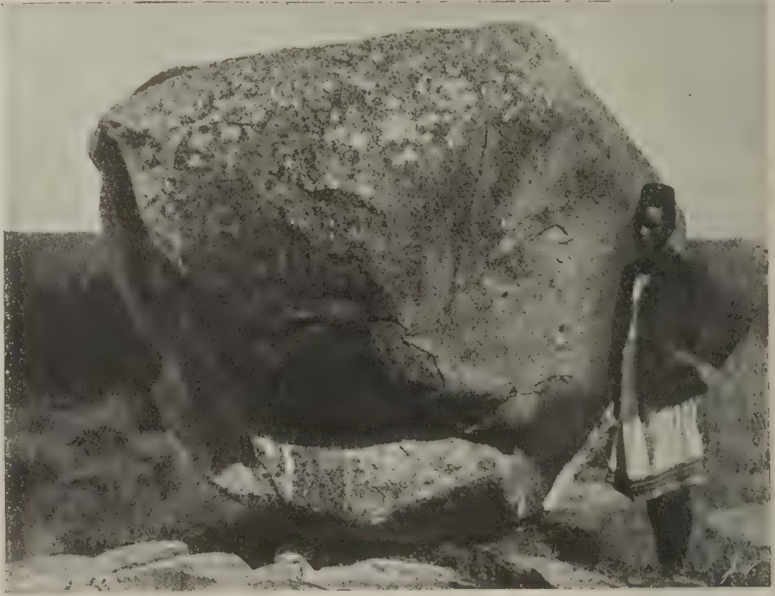

Fig 16.—THE HOME OF CEROPEGIA BROWNII; THE BASE OF THE STONE IS THE ONLY KNOWN HABITAT OF THIS INTERESTING SPECIES.

It is very significant that of these five plants, three, if not four, are new. To-day the vegetable world is largely drawn upon by the African for decoctions for medicinal, and often sinister, purposes. In the past their use was probably more common. The number of plants used in this way is very great. The wandering native, seeking pastures new in days gone by, is very likely to have carried with him some of his specially prized herbs, and planted them in his new home. That the Banana, Sweet Potato and many other useful plants were thus spread there is little doubt, and it is no more unlikely that reputed medicinal plants were likewise so carried. Changing customs would account for lack of faith in these remedies and for the cultivation of the plants being consequently discontinued. Were natural conditions entirely suitable, the plants would have naturalised themselves before this. In the cases of unsuitability they would quickly die out, as in all probability the Ipomoea, Stapelia, Euphorbia and Ceropegia have all but done. They just owe their existence to-day to the native cultivator's habit of tolerating unusual plants amongst his crops. When faith in the integrity of the law becomes greater, doubtless the Pancratium will quickly disappear, for I have seen no signs of it naturalising itself.

I leave to others the task of worrying out where the plants were brought from originally. The fact that so large a proportion of them is new makes the problem more interesting. That they are not at home in Uganda there is little doubt. They can only have been brought by the hand of man. If this is conceded, then we may assume that they are the failures of a greater number of introductions, and that the flora of parts of Africa have been modified to a great extent in this way. *E. Brown, F.L.S., Hillside, Doddington, Sittingbourne, Kent.*

GARDEN NOTES FROM S.W. SCOTLAND.

We amateurs are prone to chortle over our success with this plant or the other, and to leave a discreet veil over our failures. But to fail with any plant which has been given proper treatment is as instructive as it might be to succeed with it. I propose, therefore, to make an admission about certain plants which no amount of attention has sufficed to keep in vigour—or even in life—in our open borders and rockwork, on the chance that such confession may prove of some slight service to those similarly situated in the matter of soil and climate.

Some of the plants with which we have had difficulty no doubt resent our wet west-country winters; others, because they are dissatisfied with our somewhat ineffective summer sunshine. But neither of these conditions can be held accountable for half a century's failure to induce the common Hepatica to behave generously. Winters in Ireland are of much the same humid character as ours; yet I used to know a garden in county Cavan where even the double dark blue variety grew into great clumps full of flower. Again, in Scottish Teviotdale I have seen a steep bank between a flower-garden and the river thickly populated with blue Hepaticas, self-sown by escapes from the borders above.

Then, in the matter of sunshine, the Californian Romneya Coulteri is reputed to enjoy as much as it can get, and we have given it the snuggest positions in our power, with most meagre result; whereas at Castle Kennedy, distant some five-and-twenty miles, under precisely the same meteorological conditions, it flings its great fragrant blooms in profusion at a height of six feet. Of Cypripedium Calceolus we have abundance, nor can one have too much of that lime lover; but C. spectabile and C. macranthon flower well for a season or two, and then disappear, though one should suppose that a soil well suited for Rhododendron species would be to their taste. Mertensia echioides, M. elongata and M. lanceolata just showed us enough of their azure bloom to make us look forward to seeing more; after which they vanished. Oxalis enneaphylla I have never seen anywhere luxuriant, though one reads about its charms. Here it does little more than exist, and Parochetus communis refuses to be coaxed even to do that.

Echinacea purpurea is an autumnal beauty which I do greatly desire to have in the same liberal measure that some of my friends enjoy, but we have not found the way to its liking. Does anyone succeed in keeping Polemonium confertum mellitum, or the lovely Dutchman's Breeches (Dicentra spectabilis) for more than a season or two? Draba (Petrocallis) pyrenaica is another fugitive, though it may seem quite content with its quarters on a retaining wall for four or five years. Coronilla iberica has behaved in like manner, and as for Cyananthus lobatus one can but hope for better results from Farrer's Chinese species No. 1220. Fifty years of sedulous wooing of Gentiana verna, though illumined by transient gleams of success, have ended in discomfiture, the like of which I have avoided by never attempting Eritrichium nanum.

In dealing with bulbous and tuberous subjects one is up against a different proposition, for one never knows what subterranean animal enemies may have cut short their existence. Probably I am not alone in having failed to get Fritillaria pudica and F. aurea to flower more than once. Sternbergia lutea is altogether out of the question in our sloppy autumns, and the Californian Soap Root (Leucocrinum montanum) declined to repeat the experience of a single summer.

Loveliest of all Lilies, in my opinion, is L Browni, and goodness only knows how many bulbs thereof I have planted in hope that we might some day have such a group as filled a woodland glade with fragrance in the late Mr. Yorke's paradise at Ivor Heath. It was not to be, and I suppose we are not to be pitied so long as L. regale, with its glory of golden anthers, continues to flourish with us. Among other Lilies, L. philadelphicum and L. Humboldti dwindle persistently from the first year after planting. Can any fellow-amateur give a better account of these fine species? Brodiaea volubilis vanished after delighting us with its quaint twining habit and umbels of clear rosy flowers.

And so, though it is far from complete, I may bring this list of "casualties" to a close. *Herbert Maxwell, Monreith.*

BIBLIOGRAPHICAL RARITIES.

IN the *Observer* of January 7 appears an interesting article on the Shakespeare first folio, the tercentenary of the publication of which is to be celebrated by an exhibition of Shakespearean treasures at the British Museum. One not specially versed in this class of literature might have thought that a first folio Shakespeare was an extremely rare book, but it appears that no fewer than 172 copies of it are known to be in existence. A warning note to collectors of rare old gardening books seems to be implied in the last paragraph of that article, which states that in 1902 there were 116 copies of this book in the United Kingdom, and 51 in America. Four years later the British total had diminished to 105, and the American total had risen to 62. Since then the distribution has changed still more in favour of America.

There is certainly quite a number of old books more or less devoted to gardening which were published long before the first folio Shakespeare. There would probably be some difficulty in making a census of them, and it would not be an easy task to discover which is the rarest of all the old gardening books, and how many copies of it there are extant. The oldest are not the rarest, for there are some comparatively modern gardening books that cannot be obtained at any price or by any means. I have been on the look-out for some for over twenty years, have advertised for them, and yet never had a report. Of course, the value of old gardening books has never yet reached that of some of those on other subjects. A little more than three years ago, Messrs. Sotheby sold a number of unique literary treasures from the library of Mr. Christie-Miller. Enormous prices were obtained for some of the little volumes printed and published in the 16th century. And they mostly went to America. Some of these were the only copies known.

It would not be difficult to compile a list of very rare gardening books, of which quite a small number are known to be in existence, and it is incumbent in my opinion on the part of private collectors and such Societies as have libraries to secure these rarities and thus help to enhance their value by taking them off the market whenever the opportunity occurs. It will be a good investment for those who do so, for the eagerness of transatlantic buyers will not fail to force the prices upwards, as it has already done. *C. H. P.*

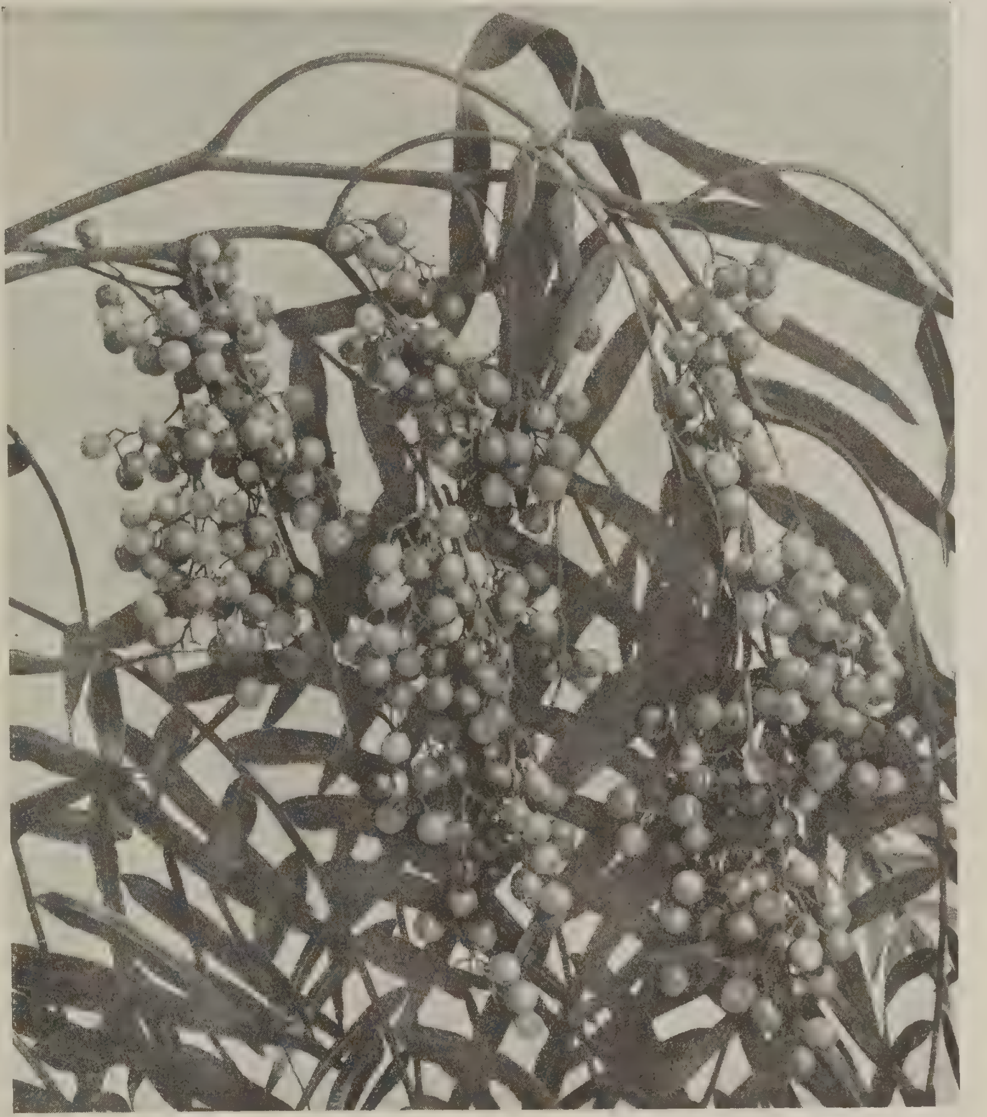

FIG. 17.—FRUITING BRANCHES OF SCHINUS MOLLE.

SCHINUS MOLLE.

DURING the few weeks immediately preceding and following Christmas a number of interesting subjects are imported from southern France for sale in Covent Garden and other flower markets. Although these are all included under the general title of "flowers" several are foliage subjects and others are in fruit. Thus, large quantities of the fruits of Solanum aculeatissimum are imported, and these find much favour with florists who wire them upon sprays of evergreens for the purpose of Christmas and other decorations. Yellow and scarlet Capsicums are also imported extensively, while brightly berried branches of Ruscus aculeatus and of Myrtle are frequently sent to the markets.

Less often, but nevertheless quite frequently, fruiting branches of Schinus Molle are imported, and usually these bear the journey well. The pendulous clusters of reddish-pink berries, associated with long, graceful, dark green, pinnate leaves appeal to florists and usually find a ready sale. The fruiting branches illustrated in Fig. 17 were so imported early in the present year.

S. Molle is a striking and attractive tree on the French Riviera, where it frequently passes under the popular name of Pepper Tree. There, the fruits, which are about the size of Red Currants, attain a much brighter hue than those imported, as the latter are cut before they are fully ripe. S. Molle is a native of South America and was introduced from Brazil and Peru so far back as 1597. Although not hardy in this country it is frequently cultivated in moderately heated conservatories and even for its foliage alone it is worth cultivation. Nicholson considers that the specific title of Molle is derived from the Peruvian name of "Mulli." In some parts of Australia, California, South Africa and the Riviera, S. Molle will attain a height of from fifteen to twenty feet, but usually under cultivation in this country its habit is more shrubby than tree-like. An interesting point in connection with S. Molle, and one recorded in the *Botanic Register*, is that the leaves of this genus are so filled with resinous fluid that the least degree of unusual repletion of the tissues causes it to be discharged. Thus some of them fill the air with a fragrance after rain and S. Molle and some others expel resin with such violence when immersed in water as to have the appearance of spontaneous motion in consequence of the recoil.

PEAR TREES AND PEARS.

In my quest after old and more or less forgotten varieties of vintage Pears, some extraneous points of interest have come to light, and seem worthy of being placed on record. They are as follow:—

Pyrus salicifolia Stocks.

In one orchard, attention was attracted from a distance by a somewhat Mistleto-like growth on the graft side; on closer examination it was disclosed that stocks of P. salicifolia had been used. Specimens were submitted to Kew for identification, especially as the leaf edges were entire, since Weathers erroneously states that they are serrate. In the accompanying illustration (Fig 18) the dwarfing effect as compared with free stock (Fig. 19) can be seen; the tree on the free stock has a girth of 40 inches, whilst that on P. salicifolia is only 27 inches. Altogether, there are three trees on this stock, and several of the same variety on free stock. But meagre history could be obtained, viz., to the effect that the present owner's father grafted them some fifty years ago. If one may hazard a guess, it may have been that he got stocks from a nursery, and some of them were of the nature mentioned.

I understand that in some places there is a "legend" that Pears sometimes grow on Willow trees, in which case it seems likely that there may be similar trees in other parts of the country. Possibly the species might be a good dwarfing stock for replacing the Quince, especially in the case of varieties which do not like direct contact with that stock. Perhaps some reader may be able to say, also, whether P. salicifolia can be multiplied readily from stools and whether it has any waywardness in regard to soil, etc.

Witches' Broom.

The only example of this condition in a Pear that I have yet seen is on a very old, un-namable perry Pear tree hard by a couple of equally senile trees of the Swan Egg variety. It is remarkable how resistant these old vintage trees must be to disease, for in general their death seems chiefly due to mass infection occurring through wounds made by the breakage of massive boughs, due to gales or weight of fruit, or the two combined. True it is that scab is not unknown on some varieties, but it generally seems to be merely superficial on the fruit, and causes little, if any, damage. I rather fancy that scab infection at an early stage may be the cause of russeting in certain normally non-russeted kinds. Some specimens of mature fruit were examined at the Ministry of Agriculture's laboratory, but with negative result so far as concerned Venturia. It would be advisable to submit young specimens to the search before casting the idea aside; if due to some disease, it evidently is accompanied by considerable resisting power.

A Rooted Scion.

An old Barland Pear tree, which years ago had lost a large branch low down, has a hollow filled more or less with rotted debris, and down this a root growth, some 6 inches in diameter, has grown. One may take it that this has gone down into the ground within the hollow trunk. As the visible part was some 6 feet from the ground it was not possible to secure a photograph.

Deficient Pollination.

Each year I generally slice a good many fruits, both Apples and Pears, in order to get or substantiate records of internal structure. In 1921, specimens without fully formed pips were not very uncommon, but the season of 1922 showed this condition to a much greater extent. Thus, amongst vintage varieties I noted that I cut more than half a dozen specimens of White Horse, Newbridge, etc., before finding a single plump pip. Similarly, I looked often in vain for a pip in Beurré Clairgeau, Thompson's, etc. The pips found showed three conditions—(1) the full plump pip; (2) a shrivelled shell, which, if filled, would have about the volume and dimensions of the normal plump pip; and (3) poor little shrivelled shells, perhaps only one-third or a quarter the size of the normal pip.

In a given fruit one might find plenty of number (1), perhaps pairs in each cell; or one or two only, the others being (2) or (3); alternatively one might find nothing but No. (2) or nothing but No. (3), or there might be one or two of No. (2) and the rest No. (3). It should be noted that the size of fruits has not diminished where only (2) or (3) were found; indeed, they might be exceptionally large.

It is also, perhaps, noteworthy that several varieties grown on a particular farm, all from very old trees, agreed in having poor, or being without apparent, fertilisation, yet the crop withal was magnificent. *H. E. Durham.*

FRUIT REGISTER.

APPLE HERRING'S SEEDLING.

This Apple, which was illustrated in *Gard. Chron.* Fig. 148, December 23, 1922, is one which, I think, will be found useful as a market variety; I agree with *Pomona* that the flavour is not in the same category as Cox's Orange Pippin, being on the whole rather flat, but the fruit is very attractive in appearance. It might be described as being more red than otherwise, and on the large side; it is a very good Apple when cooked, requiring little sugar. I obtained fruits this season from Messrs. Pearson and Sons, of Lowdham, in order that I might thoroughly test the variety. I find that it keeps until Christmas, and at that date is just inclined to go mealy and to decay in the centre. But it is still usable at that season, so we may safely regard it as keeping until Christmas. This is my only experience of the variety, and it is quite possible that in a better Apple season its flavour would be superior.

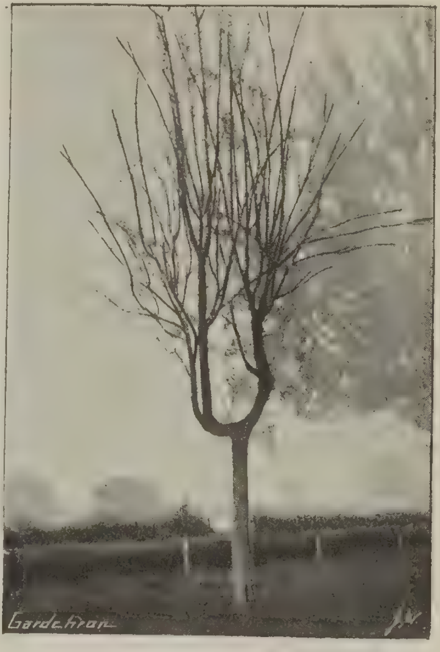

Fig. 18.—Pear tree grafted on Pyrus salicifolia.

The flesh is soft and pleasant, but when the fruit is bruised it does not decay generally as a result, and the bruise is purely local in its ill-effects and does not spoil the Apple for keeping or for sale.

I grafted some trees with this variety about three years ago, and I find the growth is stout and upright. The tree should be very suitable where room is restricted for expansion. I find it free from pests so far, a very healthy, pleasing tree. The leaf is large and undulating.

APPLE KING OF TOMPKINS COUNTY.

Some years ago a friend of mine who lives near Liskeard, Cornwall, was most pronounced in his views as to the excellent quality of Bramley's Seedling as a dessert variety. I know that there are people whose constitution is such as to render even cooking Apples palatable to them for dessert, but I was certainly puzzled to understand his strong bias for Bramley's Seedling as a dessert fruit; I asked him to send me some of the fruits, and found that it was not his palate that was at fault, but his nurseryman, who had supplied him with King of Tompkins County as Bramley's Seedling.

The mistake was fortunate, as my friend said that the tree was the most fruitful in his orchard, and eagerly demanded by retailers.

We get contradictory reports of the behaviour of this Apple in this country. I have excellent reports from Devonshire, and the King's Acre Nursery people think highly of it, while some years ago, in a commercial fruit paper, one of the writers exclaimed, "Away with it as an English Apple."

My experience so far is that it is a free growing tree, but needs shelter from cold winds when in leaf. My trees of this variety are too young to bear fruit, but I expect some this season.

So far as I can ascertain, it is a fine variety for the West of England, and I have had a good report of it from as far east as Suffolk.

The fruit is of most attractive appearance, the flesh pleasant in texture, sweet and good flavoured. It cooks first rate. I have used large quantities of this Apple, and, as it keeps late, it should be planted largely wherever it is likely to do well. No one will ever have any trouble in selling this variety; it is good all round. The less this tree is pruned the better it will do in every respect. *W. J. Farmer, Ye Hive, Redruth, Cornwall.*

DEGENERATION OF THE POTATO.*

(*Continued from p.* 26.)

Chrysanthemums furnish one of the best examples, the varieties succeeding each other more rapidly than in any other genus, and a few years often sufficing for the duration of a variety in good form, or in abundant flowering. Carnations are now in the same condition. A specialist remarked not long ago that at the end of about fifteen years a variety could be looked upon as exhausted; and some do not last even so long as this. It is the same with Gladioli, of which new varieties are produced with great rapidity, the corms losing, frequently after a few years, all power of propagation. Furthermore, the increasingly perfect varieties which are sought after are, in general, less hardy, more delicate, and more susceptible to disease than the old ones. I have seen plants of Primula obconica pass the winter in the open air when the species was still in the original form. Do not these remarks also apply to Potatos, which have now become less hardy than their predecessors?

Some years ago, Mr. G. M. Taylor attributed degeneracy to the direction in which the improvement of the Potato was being pursued—i.e., towards regularity of form and smoothness of skin in the tubers. In his opinion, this has resulted in defects in the fibro-vascular system, and an enfeebling of the diastase, which impedes the development of the germ. If one looks, on the one hand, at the rapid disappearance of innumerable varieties widely distributed during the past few years, and, on the other hand, at the persistence of certain old varieties of round shape with deeply sunken eyes such as Jaune Ronde Hâtive, which dates from 1851, l'Industrie, which is at present one of the most popular; Merveille d'Amérique, which dates back to 1874; and Chave (Shaw), which is more than a century old; it may be asked whether, in the round shape and deep eyes, there may not be some element favouring robustness of growth and longevity.

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* A paper read by M. S. Mottet and translated from the *Journal* of the French National Horticultural Society.

Attention may be called, for instance, to the longevity of the Potato Fin de Siècle, which is said to have been cultivated in Scotland, in the same district, for more than fifteen years, without showing any signs of enfeeblement. Merveille d'Amérique has probably been grown in the Charolais for even longer, though its vigour and productivity certainly vary from one plantation to another. It must be admitted, however, that one cause of this persistence is probably the suitability of the conditions of the district to the particular varieties grown there, the rarity of insect pests in northerly or elevated districts (the Charolais rises, in parts, above 1,200 feet in height) and, finally, selection in the plants grown, which is, however, completely neglected in the last-named region.

Let us now consider another aspect of the matter. In nearly all planting operations, differences of vigour more or less apparent may be observed between the individuals of any sowing. Feeble plants are often eliminated in the first thinning, as experience shows that feeble plants rarely produce strong growth later on. It is conceded that some of these weak plants may give rise to good varieties, but they remain constitutionally weak all the same. Now, the very finest variety if it lacks strength is, culturally speaking, useless. Plantations of Potatos furnish a very good example of variability of development. In the majority of cases, shortly after germination, plants of all kinds may be seen, from the feeblest and most timid, which scarcely show a leaf above the ground, to others already growing luxuriantly. This will show how important it is to exercise selection right from the first thinning, and to continue it whenever individual plants show by their poor growth that they are unlikely to produce good results. Even those which are permitted to remain will naturally vary among themselves in vigour, robustness, and longevity, characters which they will transmit to their descendants if propagated by means of eyes, together with their physical characteristics and cultural merits. In these constitutional differences, may not one of the causes of the disappearance of new varieties be found?

Does propagation by means of eyes contribute to the exhaustion of a variety? It is difficult to ascertain by experiment, as it takes so long a time, and further, the question is complicated by the intervention of disease. Nevertheless, taking into consideration the evolution of the Potato during its history, the progressive and undeniable disappearance of varieties, the similar process observable in other highly cultivated plants, and other physiological facts, one is compelled to admit that degeneration is taking place from causes other than "natural degeneration."

The question now arises, whether certain diseases are transmissible by sexual means? Is the feeble condition of plants raised from seed solely due to congenital debility, or to diseases transmitted by the infected seed-parent to the germ when passing through the ovule? This problem is one of the most puzzling in plant physiology.

Whatever may be the final decision on these very delicate questions, those who have devoted their whole lives to the subject of cultivated plants and who have attentively observed their evolution, cannot but admit that improved varieties, propagated solely by asexual methods, deteriorate more or less rapidly, and cease at last to be remuneratively cultivable. It is simply a question of time, and of individual robustness; that is all.

All individuals are not similarly endowed from birth. The struggle for existence begins with the beginning of life itself, and the duration of life is a matter of individual circumstances. The duration is partly inherent in the species and in the individual, and is partly affected by the influence of artificial propagation and cultivation, and of diseases, which gain a hold more rapidly in highly bred plants than in natural types.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Home-grown *versus* Imported Apples (p. 27).—The extremely marked difference in appearance between home-grown and imported Apples has been observed times without number, precisely as it has been seen recently by *F. B.* Why this should be is by no means easy to state convincingly, but it has been my view for many years that it is not due to the packing or to the texture of the skins, but to the flesh of the fruits. I have not the slightest doubt that Mr. Seabrook, Mr. Paget Norbury and many other equally expert Apple packers could pack just as well as any colonial packer, and that the fruits would travel as far and as well, provided that each packer was handling colonial produce, but if the Englishmen were restricted to English fruits and the Colonials to colonial fruits, the latter would come out at the end of the journey far the better of the two. That Apples differ considerably in flesh is well known, and the best English packers know that the pressure which will suit one variety will not suit another, and they, therefore, vary it accordingly. Steady pressure inevitably flattens the fruits in places, and in those varieties which have, apparently, exceedingly tender flesh this pressure leads to immediate bruising and decomposition, whereas in others with, apparently, a less tender flesh, no bruising, not even discoloration, follows. This wide difference in the tenderness of the flesh, or at least in its susceptibility to bruising, does not seem to be characteristic of the Apples sent to us from our colonies, though they may have varieties showing a similar disability and which they very wisely keep at home. The point is one, I think, that scientists may be able to decide, but it is not one which comes within the province of the practical grower. Grading is a totally different proposition. There are still numerous commercial growers who will not think of it, not to speak of practising it, but they do not make as much money as those who do, and they never will. *W. Tiplow.*

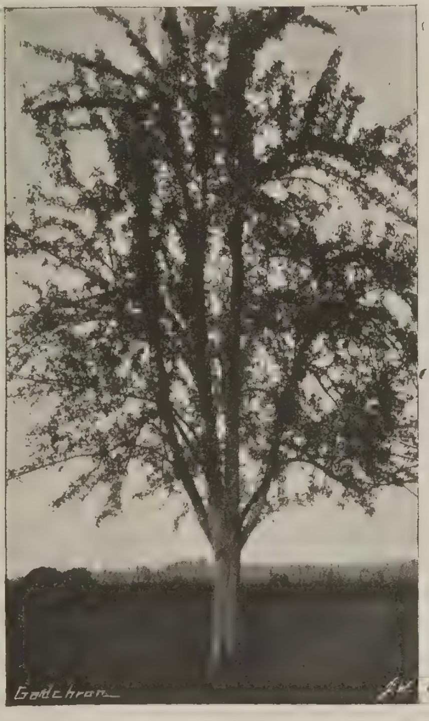

FIG. 19.—PEAR TREE GRAFTED ON THE FREE STOCK (SEE P. 38).

Caustic Fruit Wash (p. 26).—There is not the slightest doubt that *Market Grower* will find 1 lb. caustic soda, 98 per cent. purity, quite sufficient if dissolved in 10 gallons of hot water and applied hot, to completely cleanse trees of all encrustations of Mosses and Lichens, but where, as doubtless in the case of *Market Grower* himself, a large quantity has to be used, it is always difficult, and frequently impossible, to use a solution hot. I have tried caustic soda wash at varying strengths, and have come to the conclusion that the formula is not quite so much the indispensable factor as the thoroughness of dressing and the heat, if these be within the bounds of practicability. *E. F. C.* (page 27) is not alone in experiencing trouble in the eradication of Mussel scale on Apples, and he will find Oyster scale on Pears just as bad, if he is cursed by its attacks. The scaly covering is an efficient protection, and no sprayed wash will destroy it in the winter condition. When, however, caustic soda wash is scrubbed on, as is desirable on old bark, many of the insects will be killed, because the hard outer covering is broken through by the pressure. The most effectual wash against both these scale insects that I have used is the following Woburn formula: 1 gallon paraffin (petroleum), ¾ lb. soft soap, 3 lb. caustic soda, 98 per cent. purity, and 14 gallons of water. Dissolve the soft soap in about half a gallon of boiling water, and while still as nearly boiling as possible add the paraffin, churning with the utmost thoroughness. Dissolve the caustic soda in the remainder of the water and pour it into the paraffin and soft soap solution; perfect mixing is again indispensable, and it is of great importance that the completed wash shall be applied at once. If everything is in proper order, eggs as well as scales will be destroyed, but in particularly bad cases some will certainly escape, and a spray dressing of a paraffin emulsion about the middle of June will be desirable for killing recently hatched young scales. I agree fully with *E. F. C.* that spraying is a costly process; nevertheless it must be done if the finest crops are to be harvested year after year.—*H. J.*

White Gladioli.—I read, with interest, Mr. G. Errey's note on p. 20, as it goes to prove my main contention that many varieties described as white are not really white in the sense that White Giant is white. Season and location have much to do with the variation of the so-called white varieties. Mrs. Robert Wordsworth, as exhibited by Messrs. Kelway in 1915 (I think), impressed me at the time as being one of the purest whites, and I planted some corms in 1916, and I remember saying to Messrs. Kelway's man that the corms sent to me had produced flowers with a decided tinge of pink. He informed me that it was due to the season, and their own flowers were the same. Europa has never proved worth growing in my garden; and Zeppelin, which I grew for three years (1916-18), I also discarded for the same reason. This also showed at times flecks of rose pink. As to awards made by the R.H.S., I presume the Committee can only judge the flowers as presented to them, and when they are undecided as to a flower being worthy of an award, they express a wish to see the flower again. This is, I understand, what actually took place in the case of Snow Glory before the award was made. I for one shall continue to grow Snow Glory so long as it continues to give spikes of the same quality it has done in the past. Of the other varieties mentioned, I saw the spikes of Butterboy after the award was made, but although I planted over a dozen corms of this variety, I had no spike to compare with those shown by Messrs. Lowe and Gibson. However, I propose planting more of this variety during the present year. Of the varieties mentioned in the last paragraph of Mr. Errey's note, I have only tried Eugene Sandow, which proved a failure. The Gladiolus is like many other plants; certain varieties will do well where others will not, and I now hesitate to condemn a variety because it has failed with me. I am trying some Australian varieties which have come to me with high recommendations, but it would be rash for me to suppose they will turn out to be all good. Climatic conditions are so different. *Smilax.*

SOCIETIES.

ROYAL HORTICULTURAL.

January 16. For a first meeting of the year the exhibition at Vincent Square, on the above date was a good one, and exceeded general expectations. It is usual to find the hall about half filled on such an occasion, but this time there were few vacant spaces. The chief attractions were Orchids, fruits, Carnations, early spring flowers, Cyclamens, Camellias and Alpines. The Floral Committee was sparing in its awards, and granted only seven medals for groups. The Fruit and Vegetable Committee had one very promising new Apple before it, and the Orchid Committee considered numerous novelties, including a presumably new species of Dendrobium, of the D. macrophyllum type.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson, R. Brooman White, Arthur Dye, Fred. K. Sander, Chas. H. Curtis, J. E. Shill, A. McBean, W. J. Kaye, E. R. Ashton, Pantia Ralli, H. G. Alexander, C. J. Lucas, Stuart H. Low, and H. T. Pitt.

Awards of Merit.

Brasso-Cattleya British Queen (*B.-C. Digbyano-Mendelii* × *C. Lord Rothschild*), from Pantia Ralli, Esq., Ashtead Park (Orchid grower, Mr. Farnes). A very handsome flower of large size and perfect form. The sepals and petals are rosy-mauve, the lip being darker in front with a pale yellow centre.

Cymbidium Curlew var. Feather (*Butterfly* × *Alexanderi*), from Lt.-Col. Sir Geo. L. Holford, K.C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander), the best of this distinct cross yet shown, the fine spike bearing large, pure white flowers with slight mauve lines and rich ruby-red spotting on the well-formed lip.

Sophronitis Lowii, from Pantia Ralli, Esq., Ashtead Park. A gem among species of Orchids not yet well known. The first yellow variety was S. Rossiteriana, Rodriguez, later adjudged to be a yellow variety of the scarlet S. grandiflora. S. Lowii differs greatly in the rather smaller size, greater profusion, and darker chrome yellow of the flowers, and is amply distinct from any other form. The little plant shown bore a profusion of pretty blooms of pure yellow colour. Crosses with it should give a new and desirable class.

Cymbidium Doreen (*Pauwelsii* × *Doris*), from Messrs. J. and A. McBean, Cooksbridge. This may be said to be the best dark Cymbidium up to the present. The plant bore a fine spike of seven large flowers with unusually broad segments. The colour was deep bronzy-purple displayed in dotted lines, the margins and small spaces between the dark markings being rich gold colour.

Groups.

Messrs. Charlesworth and Co., Ltd., Haywards Heath, were awarded a Silver Flora Medal for an excellent group of good hybrids, especially noteworthy in their selection of Calanthes being the New Calanthe Stella (Ruby × Kewensis) with good dark ruby-red flowers and a carmine glow in the centre; several forms of their dark Odontioda Brewii and other Odontiodas; a fine selection of hybrid Odontoglossums with their xanthotes forms, which are of the purest white with straw-yellow spotting; a selection of good Cattleyas, the best white being C. Blackii alba, seldom seen so good; the new C. Octho (Octave Doin × Clotho), a pretty flower; and various Laelio-Cattleyas. Among the pretty and interesting species were the neat yellow Oncidium cheirophorum, and the stately O. splendidum.

Messrs. Cowan and Co., Ltd., Southgate, were awarded a Silver Flora Medal for a pretty group in which the varieties of their beautiful Laelio-Cattleya Dodona varying in tint, but always good, were arranged round a fine specimen of the new Brasso-Cattleya British Queen, a grand blush white flower with mauve markings inside the fringed labellum. Among the Laelio-Cattleyas, their type of L.-C. Schroderae, with its peculiar white sepals and petals and entirely maroon lip, was attractive.

Messrs. Stuart Low and Co., Jarvisbrook, had a very good group, for which a Silver Flora Medal was awarded. The group contained several new hybrids of excellent merit, Brasso-Cattleya Lawrie (B.-C. Marguerite Fournier × C. Octave Doin), flowering for the first time, being very distinct. A selection of good Cypripediums had for the best C. Lawrie (Dicksonianum × Aisne). The Sophronitis crosses contained Sophro-Cattleya Blackii, the best deep red, and among the species were a selection of Oncidiums, including O. ornithorhynchum and its white variety.

Messrs. Sanders, St. Albans, were awarded a Silver Flora Medal for a good group, in the centre of which was a grand example of the blush white Brasso-Cattleya Crofutiana, with other Brasso-Cattleyas and Laelio-Cattleyas, and a selection of Cypripediums. Among the species noted were the pretty little Epidendrum polybulbon, Masdevallia tovarensis, M. polystichta, M. Gargantua, and several rare Oncidiums.

Messrs. J. and A. McBean, Cooksbridge, were voted a Silver Banksian Medal for a small, but very select group, in the centre of which was a fine specimen of Cymbidium Schlegelii, with six spikes, and with it the fine new C. Doreen. Among the Odontoglossums a grand form of O. Miguelito, with a fine spike of violet-red flowers, and other richly coloured forms were noted, O. Aquila (ardentissimum × C. l'Empereur) being superb.

Other Exhibits.

Sir Jeremiah Colman, Bart., Gatton Park (gr., Mr. J. Collier), showed Odontioda Brackenhurst Gatton Park variety, one of the largest and best vinous purple Odontiodas; the singular Dendrobium tetragonum, with spider-like flowers; and an unknown Dendrobium of the D. macrophyllum (Veitchianum) section.

G. W. Bird, Esq., Manor House, West Wickham (gr., Mr. Redden), sent Odontioda Rufus (Odm. crispum × Oda. beechensis), with fine Tyrian purple flowers.

R. Gerrish, Esq., Milford Manor, Salisbury (gr., Mr. W. Sorrell), showed Odontoglossum crispum Gerrish's variety (Luciani × Empress of India), a showy form, with good flowers effectively blotched with dark mauve.

Pantia Ralli, Esq., Ashtead Park (Orchid grower, Mr. Farnes), sent Cattleya Trianae Col. H. Carlisle, a pretty white flower with mauve markings on the front of the lip, and of excellent shape.

A. M. Gentle, Esq., The Capstone, St. Albans, showed two hybrid Cypripediums, the darker being a very fine flower.

Floral Committee.

Present: Messrs. H. B. May (in the Chair), W. J. Bean, G. Reuthe, W. P. Thomson, John Heal, C. R. Fielder, George Harrow, Donald Allan, W. Howe, J. Jennings, J. F. McLeod, Thos. Stevenson, Hugh Dickson, W. B. Gingell, A. G. Jackman, M. C. Allwood, H. J. Jones, D. B. Crane, Chas. E. Pearson, Arthur Turner, W. G. Baker, Reginald Cory, W. B. Cranfield, G. W. Loder, R. C. Notcutt, and E. A. Bowles.

Only nine novelties were placed before this Committee, and one award was granted, as above. Mr. G. Carpenter, West Hall Gardens, Byfleet, showed fine blooms of Chrysanthemum Louisa Pockett, from terminal buds of non-stopped plants; these were of large size, of pearly pink colour, and very decorative. Mr. K. Luxford's cerise pink Carnation named Cheerful, has attractive colour and some fragrance.

Award of Merit.

Cyclamen Firefly. A very effective variety, showing a nearer approach to scarlet in the flowers than any other variety we know. The blooms are of medium size, and the foliage may be either green or handsomely marbled, both these types appearing. The colour of the flowers is rich reddish scarlet—almost vermilion in bright light. This new variety has been obtained by the intercrossing of deep salmon coloured varieties, and is a fine result of long continued care. Shown by Messrs. Sutton and Sons, Reading.

Groups.

The mildness of the winter and the coming of spring were evidenced by the especially attractive group of Hyacinths, Daffodils and other spring bulbs, arranged by Messrs. Sutton and Sons. The Hyacinths were all from "prepared" bulbs which have undergone a special treatment in order to induce early flowering, and these were shown in various colours in large ornamental baskets and bowls. The Daffodils were of the variety Cervantes and the Tulips were Montresor—a particularly good yellow. Along the front there were occasional pans of the valuable Iris reticulata (Silver-Gilt Banksian Medal).

Hyacinths in variety with Freesia refracta alba of considerable merit were attractively arranged by Messrs. R. and G. Cuthbert, who also had large clumps of an especially clean variety of the white Christmas Rose. A great variety of the Polyanthuses he grows so well, together with Snowdrops, double Daisies, and the beautiful blue Anchusa myosotidiflora, were staged by Mr. G. W. Miller. In the customary exhibit by Mr. G. Reuthe we noted, with various specimens of trees and shrubs, patches of hardy Cyclamen, Christmas Roses and Snowdrops.

Iris reticulata, Adonis amurensis and Christmas Roses, with hardy Conifers, were shown by Messrs. J. Cheal and Sons. A number of shapely Conifers in variety were contributed by Messrs. Wallace and Co., who also had floriferous branches of Hamamelis Zuchariniana, H. japonica aureta, and many pans of spring Crocuses. A very neat arrangement was made by Messrs. Waterer, Sons and Crisp, where they displayed goodly patches of Cyclamen ibericum and varieties, Crocus susianus, Anemone fulgens and Iris tingitana (Silver Banksian Medal). A good collection of Conifers, suitable for rock garden planting, was shown by Messrs G. G. Whitelegg, who also had well-berried little bushes of Skimmia japonica and a pan of Iris reticulata. A rockery well planted with Conifers and other evergreens, amongst which was a well-flowered bush of Garrya elliptica, was built by Messrs. Wm. Cutbush and Sons. Such alpines as Saxifraga burseriana and Iris histrioides major were also well displayed.

A collection of Camellias was arranged by Messrs. Chaplin Bros. Snowflake, a free-flowering white variety, Alba plena, Jupiter, a clear red single, and Marguerite Carboni, double-red, were all good sorts.

Azaleas were shown by Messrs. Moyses Stevens, who also had good plants of Erica melanthera and E gracilis, by Messrs. L. R. Russell, Ltd., and Messrs. Stuart Low and Co., who also had several good plants of Acacia and winter-flowering Begonias. Adjoining these Messrs. Stuart Low and Co. showed a large collection of greenhouse Carnations of merit (Silver Banksian Medal). Carnations were also staged by Messrs. Allwood Bros., who had varied vases of Edward Allwood with Wivelsfield Fancy, Wivelsfield Claret, and Triumph (Silver Flora Medal). Mr. C. Engelmann seemed to specialise with the yellow shades, for he had Jessie Allwood, Saffron, Maine Sunshine and Marian Willson (Silver Banksian Medal).

The President of the Society, Lord Lambourne (gr. Mr. H. Cunningham) sent from his gardens at Bishops Hall, Romford, a collection of greenhouse Carnations, which included Mrs. C. F. Raphael, Volcano, Mrs. Charlotte Knollys, Tarzan and Mrs. Walter Herries (Silver Flora Medal). Messrs. Blackmore and Langdon staged excellent plants of greenhouse Cyclamen of the grandiflora type. Their Giant White, Salmon King and Giant Crimson were particularly good (Silver Flora Medal).

Fruit and Vegetable Committee.

Present.—Messrs. C. G. A. Nix (Chairman), J. Cheal, E. A. Bunyard, H. S. Rivers, S. B. Dicks, Owen Thomas, Geo. F. Tinley, W. F. Giles, A. C. Smith, P. D. Tuckett, T. Pateman, J. G. Weston, H. Markham, Ed. Beckett, W. Bates, J. C. Allgrove, W. Poupart, A. Bullock, A. W. Metcalfe, W. H. Divers, W. Wilks, P. C. M. Veitch, G. Reynolds and A. Rawes.

Award of Merit.

Apple Ball's Pippin.—A late dessert variety raised from Cox's Orange Pippin crossed with Sturmer Pippin. The fruit is of flattish-round shape, of medium size, and is in season until March. The skin is greenish-yellow, flushed with red; one or two of the fruits were very brightly coloured, so that in a sunny season it would probably be very showy. The flesh is white, juicy, sweet and of good flavour. The tree is said to be fairly robust and a free cropper. The award is provisional on the tree fulfilling the requirements as to cropping, habit, etc., to be determined by an inspection next season. Shown by Mr. J. C. ALLGROVE, nurseryman, Middle Green, Langley.

A Gold Medal was awarded to Messrs. G. BUNYARD AND Co. for a magnificent exhibit of Apples and Pears, comprising 76 distinct varieties. The fruits were attractively staged in baskets and on stands, with a few Palms as foils. The finest of the Apples were Golden Spire, Bismarck, Sir John Thornycroft, Allen's Everlasting, Ellison's Orange, Heusgen's Golden Reinette, Allington Pippin, Encore, Cornish Aromatic, Wagener, and Twenty Ounce. The Pears included such sorts as Bergamotte d'Esperen, Double de Guerre, Duchess de Bordeaux and Beurré Perran.

Mr. J. C. ALLGROVE was also awarded a Gold Medal for a grand lot of Apples and Pears, the quality being exceptionally fine. This exhibit contained 74 varieties of Apples and 6 of Pears. Fruits of the new S. T. Wright variety of Apple occupied a conspicuous place in the centre of the exhibit. Others of special merit were Gabalva, Rival, Golden Noble, Wadhurst Pippin, Lady Henniker, Encore, Edward VII., Blue Pearmain, Ontario, Arthur Turner and Belle Pontoise.

Messrs. SUTTON AND SONS set up a collection of vegetables of very high quality, and arranged with good taste. The Carrots were remarkably good, especially those of new Red Intermediate, Matchless Scarlet, and Scarlet Intermediate varieties. Very large roots of Student Parsnips, excellent Sutton's Black Beets, Royal Favourite Leeks, Long Keeping, Ailsa Craig, and Red Italian Onions, Potatos in variety, Scorzonera, Seakale, Chicory and Dandelion were also included, whilst coloured Kales gave a pleasing touch of bright colour to the exhibit (Silver-gilt Knightian Medal).

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THE Annual General Meeting of this Society was held in Dowell's Rooms, George Street, Edinburgh, on January 10, Mr. David King, president, in the chair.

The report by the Council stated that the Society had had a very successful year. The average attendance at the monthly meetings was 90, and eight First-Class Certificates, four Awards of Merit, and nineteen Cultural Certificates were awarded for new and meritorious plants exhibited at these meetings and the autumn flower show. The accounts showed an excess of income over expenditure of £83 16s. 4d. It was intimated that an autumn show would be held this year, and that preparations were being made for an international show to be held in 1925.

The following office-bearers for 1923 were elected:—Honorary president, The Rt. Hon. Lord Elphinstone; president, Mr. John W. M'Hattie; vice-president, Mr. T. J. Gray; councillors, Messrs. D. King, A. D. Richardson, J. A. Sword, and L. B. Stewart; auditors, Messrs. A. and C. Davidson Smith, C.A.

NATIONAL ROSE.

THE National Rose Society's 64th annual general meeting was held at Caxton Hall, Westminster, on Tuesday last. The President, Mr. E. J. Holland, occupied the chair, and there were about eighty of the members present, including several ladies. The minutes of the previous meeting were taken as read, and the Chairman immediately submitted the annual report, of which the chief items are those following :—

Extracts from the Report of the Council.

The Council are gratified to be able to report further highly satisfactory progress, the record number of 2,029 members having joined the Society during the year just ended.

During the year new additions have been made to the Society's Library at 25, Victoria Street, and many volumes most in demand have been trebled.

Four shows were held during the year. The Spring Show was held in the London Scottish Drill Hall on Friday, April 21. In spite of special difficulties the show was a big success, a number of very fine exhibits being staged. The Summer Show was held in the Botanic Gardens, Regent's Park, on Thursday, June 29. This proved a very fine show, the blooms being remarkable for their cleanness and brightness. The attendance, which numbered 14,000, was a record. The Provincial Show was held at Wolverhampton on Tuesday and Wednesday, July 11 and 12. The exhibits staged were of a very high order. The Autumn Show was held at the Royal Horticultural Hall on Thursday, September 21. The large number of exhibits staged were of a marvellously high standard, and won the general admiration, not only of a crowd of visitors, but of the general Press throughout the country.

The Council have great pleasure in reporting that the whole of last year's deficit has been wiped out, and the financial position of the Society is now stronger than ever. The total receipts for the year amount to £5,348 3s. 4d., and the total payments for the same period to £5,291 12s. 7d., leaving a balance at the Society's bankers on December 31, 1922, of £56 10s. 9d.

It is with the deepest regret the Council have to record the death in February last of its Deputy-President, Mr. Walter E. Martin. For many years he had taken a great interest in the Society's affairs, and by his ability and devotion had earned the high appreciation of his many friends.

In conclusion, the Council desire once more to record their appreciation of the good work done by Local Secretaries and others in securing new members and generally in promoting the interests of the Society. They also wish to acknowledge with gratitude the services rendered by Miss Willmott, V.M.H., one of the Society's Vice-Patronesses.

The Chairman said he was sure that everyone would consider the report a most satisfactory one, and all present would be especially gratified with the fact that no fewer than 2,029 members had joined the Society during the past year. It was the Hon. Secretary's ambition to enrol 2,000 new members during 1922, and he had done so, with 29 in excess. Referring to the publications, he stated that the *Rose Annual* of 1923 will be published next month, and he had the Secretary's opinion behind him when he stated it would be one of the best *Annuals* ever published, if not the best. The shows had been very successful, but one that was more noticeable than any of the others was the autumn exhibition, by reason of its large size and the fine quality of the Roses. He was glad to know that the Society was in a splendid condition financially. In 1921 they were not able to meet within the year all the liabilities of the Society, but in 1922 they had not only been enabled to pay their way, but to wipe out all standing accounts of the previous year. He referred to the sad loss the Society had sustained in the death of the Deputy-President, Mr. W. E. Martin, who, if he had been spared, would have been elected President this year. In conclusion, he expressed the deep thanks of the Council for the good work done by the local secretaries, and also by Miss Willmott, one of the Society's Vice-Patronesses.

The adoption of the report was seconded by Mr. F. Cant, who stated that the Society was fortunate in having an excellent President, an excellent Secretary, and an excellent Treasurer, and he hoped that it would continue to flourish in the future as in the past. At this stage the Hon. Treasurer. Mr. Preston-Hillary, submitted the financial statement. He stated that the Society was never in a stronger position financially than it was to-day, and he was glad to announce that while the receipts showed a tendency to go up the management were enabled to keep the expenses down. The sum of £4,556 0s. 9d. received for subscriptions was the most satisfactory item of the balance sheet. It was an increase of nearly £800 on 1921 and £1,300 on 1920. Over £1,000 had been discharged on account of outstanding liabilities, and he was glad to be able to say that at the present time there were no outstanding accounts whatever, whilst there was a balance of £56 10s. 9d. to be carried forward. Whilst this was extremely gratifying, he regretted that they had not been able to make any addition to the reserve fund in the past year; but as a set-off to this they would be pleased to know that the value of their investments had increased very considerably during the year. He had pleasure in supporting the resolution moved by the Chairman and seconded by Mr. Cant. The resolution for the adoption of the report and balance sheet was then put by Mr. Holland and carried by the unanimous vote of those present. The Chairman announced the report of the scrutineers of the ballot papers for the election of members of the Council, and stated that 601 papers were returned, of which 595 were in order. He declared the following elected :—

Mrs. Courtney Page, Mrs. H. R. Darlington, Mrs. Oakley-Fisher; Messrs. H. S. Bartleet, A. R. Bide, H. R. Botwright, G. Burch, C. Chambers, W. R. Chaplin, Reginald Cory, Charles H. Curtis, R. de Escofet, Alex. Dickson, E. Doncaster, W. Easlea, C. W. Edwards, John N. Hart, E. J. Hicks, A. Johnson, G. Marriott, J. R. Mattock, W. E. Moore, H. Oppenheimer, Dr. Panckridge, B. W. Price, A. E. Prince, W. D. Prior, L. P. Roberts, A. Norman Rogers, Major A. D. G. Shelley, F. Spencer, F. Spooner, Hy. Street, Will Tayler, Lt.-Col. B. J. Walker, H. Whitlock.

The officers were also elected. Mr. S. Jackson was elected President and Mr. C. C. Williamson, Vice-President. At this stage Mr. Holland asked the new President to take the chair. Mr. H. R. Darlington, in proposing a vote of thanks to Mr. Holland, as he left the chair, stated that he had been a great supporter of the Society so long as he, Mr. Darlington, could remember, He had helped greatly in times of difficulty, and he left the President's chair in the Society's most flourishing period, and much of the success was due to Mr. Holland. The new President thanked the meeting for his election, and Mr. Holland also returned thanks for the vote passed on his retirement, expressing the pleasure the work of promoting the interests of the Society gave him. A few minor alterations were made in the Rules, the objects of which were (*a*) to enable the Past-Presidents of the Society to become members of the Council; (*b*) to enable the shows to be held over more than one day; and (*c*) to preclude anyone who is not a member exhibiting at the Society's shows.

Considerable discussion took place on the motion by Mr. Preston-Hillary, "That the Council be instructed to take the necessary steps with the view of obtaining, if possible, a royal charter of incorporation." Mr. Preston-Hillary stated that the time had come when some form of incorporation was necessary for the Society. The Council was responsible for a considerable amount of public monies, in the form of subscriptions, and they had also a reserve fund of roughly £5,000. It was only logical that the Society should be put on a businesslike status. He pointed out some of the limitations of the Society as at present constituted. For instance, it is impossible for them to hold land or to bring an action against an individual. He stated the probable cost of the charter would be £125, of which sum £110 would be fees payable to the Home Office. There should be no difficulty in obtaining the charter, as the history of the Society would be a sufficient claim to present to the Privy Council. There was only one other way of making themselves into a corporate body, and that was by turning themselves into a limited liability company. The Rev. Pemberton seconded the motion.

Mr. H. R. Darlington moved an amendment altering the motion by substituting the word empowered for instructed, so that it should read "be empowered, if upon inquiry they should think it desirable." He agreed with much Mr. Preston-Hillary put forward, but they might find a trust more pliable for working under than a royal charter, which would tie the Society down and make it very difficult to introduce alterations in the rules, etc.

Mr. Holland considered the matter was one which should be discussed by the Council and not be brought to the general meeting by one of the officers of the Society. He would like the meeting to substitute the word empower for instruct. If they considered it advisable the Council then could proceed with it. A member gave his experiences of the difficulties a Society of which he was Secretary had in obtaining a charter of incorporation; but Mr. Preston-Hillary pointed out that he was referring to a chartered company, which had nothing to do with a royal charter. Another member inquired if a change of the name of the Society would be involved; he would not like to see the word royal added. Mr. Preston-Hillary asked for permission to reply to Mr. Holland, and stated that he had given notice of the motion to the Hon. Secretary before the last Council meeting, and it was even known at the Council meeting previous to that one. He was prepared to accept the following alteration: "That the Council be empowered to take the necessary steps with a view to obtaining if possible a royal charter of incorporation if it is found desirable." The Rev. Pemberton said he would be pleased to second this motion, and, being put to the meeting, it was adopted unanimously. Votes of thanks to the officers and members of the Council, including the retiring President and new President concluded the proceedings.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this Society was held in the R.H.S. Hall on Monday, January 8, Mr. C. H. Curtis presiding. Nine new members were elected. Three members withdrew interest amounting to £8 8s. 2d., and one member over the age of 70 years withdrew £65 5s. 4d. from his deposit account. The sum of £59 17s. 1d. was passed for payment to the nominee of a deceased member. Grants of £7 each were made to two members from the Distress Fund, and £5 was granted to one member for dental treatment.

The sick pay for the month on the private side came to £114 19s. 3d., and on the State side £94 19s.; maternity claims £6. The Trustees were empowered to invest a sum of £1,000.

CARDIFF GARDENERS'.

Mr. H. Wheeler, gardener at Wenvoe Castle, gave a lecture on "Onions for Exhibition" at the meeting of the above association held on the 2nd inst. Mr. Wheeler dealt fully with the cultivation of this vegetable as practised by himself. He said the seed was best sown in boxes in preference to pots, using three parts loam and one part old potting soil, with sand to lighten the texture. The preparation of the bed by bastard trenching and the addition of a liberal amount of cow manure was advised.

Mr. Wheeler gave full details on the growing of Onions from seed sowing to the harvesting and ripening of the bulbs. Prizes offered for a dish of five Onions were awarded to Messrs. Coach, Cossam, and Fry respectively.

Obituary.

Joseph Hughes.—The death took place at Horbling, Lincolnshire, on January 4, of Mr. Joseph Hughes, in his 71st year. The deceased was head gardener to the late Colonel Cartwright at Eydon Hall, Northamptonshire, from 1876 to 1891. From 1891 to 1908 he was in charge of the gardens at Wentworth Woodhouse, Rotherham, Earl Fitzwilliam's Yorkshire seat, and subsequently was in charge of the gardens at Bishopthorpe Palace, York; Womersley Park, Pontefract; and Melton Park, Doncaster, which last place he left in April, 1922, owing to failing health. Whilst learning his profession, Mr. Hughes served in the gardens at Mentmore, Buckinghamshire; Eaton Hall, Chester; and Wynnstay Park, Ruabon. In the 'eighties he was a very successful exhibitor at the principal horticultural shows in the country, and carried off several valuable trophies for Potatos, etc. Later, his services were much in request as judge at horticultural exhibitions. The deceased is survived by a widow and grown-up family. His first wife died fifteen years ago; and he had also lost a son, who was for some time gardener at Hoar Cross Hall, Burton-on-Trent. Mr. Hughes was a life member of the Gardeners' Royal Benevolent Institution. The funeral took place at Horbling on January 8.

LAW NOTE.

FAILURE OF A MANURE FIRM.

The Official Receiver in the Companies Winding Up Division of the High Court of Justice has issued his report and observations in the matter of The Britannia Fertiliser Co., Ltd., Parliament Mansions, Victoria Street, S.W., against whom a Winding Up Order was made on July 25, 1922. The statement of affairs shows liabilities expected to rank against the estate for dividend £1,247 10s. 7d., and assets estimated to produce £20 12s. 3d., which sum was absorbed on account of debenture bonds. As regards contributories, the paid up capital was £2,600, and the total deficiency amounted to £3,847 10s. 7d.

The Company was registered as a private company on June 29, 1920, with a nominal capital of £3,000, subsequently increased on February 7, 1922, to £3,500. The principal object of the company was to manufacture and deal in all kinds of fertilisers and manures.

On March 16, 1922, the Company issued six debentures of £50 each, to one Sidney George Hays, in exchange for debentures for the same amount held by him in another company, which according to the Company's minute book, were sold by the company on March 31, 1922 for £300. The proceeds of the sale were paid direct to the other company referred to, to whom the company was indebted in the sum of £194 1s. 11d., for cash advanced. On July 12, 1922, the other company mentioned went into voluntary liquidation, and the balance of the £300 (£102 15s. 1d.) was still held by them, and was returned in the statement of affairs as a bad debt.

The landlords of the company's premises at Slough levied a distress for rent on July 1, 1922, and sold all the company's assets with the exception of a small quantity of loose plant which had since been disposed of by the Official Receiver for £20.

The Official Receiver was of the opinion that the failure of the company was due to its inability to dispose of its manufactures.

ANSWERS TO CORRESPONDENTS.

A Gardener's Wages During Illness: *W. H. L.* Seeing that your employer has paid you full wages for several weeks during your illness, it is not, in our opinion, unreasonable that he should deduct the amount you are entitled to under the State Insurance Scheme. You must remember that your employer, as well as yourself, is a contributor to the State Insurance Scheme.

Cyaniding: *E. B. Y.* Cyaniding for the destruction of White Fly in glasshouses is by means of a deadly gas formed by combining cyanide of potassium (or sodium cyanide) with sulphuric acid and water, and not by spraying the affected plants.

Dracaena Unhealthy: *R. R. G.* There are signs of fungus injury in the spots, and a definite parasite may be present. Frequent dusting of the young leaves, as they develop, with green sulphur may keep the fungus in check.—*Brad.* The plant is not diseased, but some wrong physiological condition has resulted in the scorched appearance of the plants.

Freesias Diseased: *G. H. D.* The fungus Botrytis was present in the specimens you sent, but it is impossible to say whether this is the primary cause of the trouble you complain of, or whether the fungus has appeared as the result of the plants becoming unhealthy from some other reason.

Gardeners' Hours: *Head Gardener.* The amount of hours worked in gardens varies according to the custom in the particular district. As an average, the summer hours are from 7 a.m. until 6 p.m., with three-quarters of an hour for breakfast and an hour for dinner; in winter the staff usually commences work after breakfast, at 8 a.m., and continues until 5 p.m., with an hour for dinner.

Gardener's Notice and Possession of Cottage: *E. C.* If you do not give up possession of the cottage when the month's notice expires, your employer can take out a summons for possession; but it will be in the discretion of the Court as to what order shall be made, having regard to all the circumstances. If you cannot find accommodation elsewhere, you should attend on the hearing of the summons and explain what efforts you have made in that respect.

Late Flowering Chrysanthemums: *W. M.* If you insert cuttings of Tuxedo and Heston White Chrysanthemums towards the end of the present month you should be able to obtain flowers about Christmas time. The growing points should be pinched out when the young plants are about six inches high, and stopping should be done again during the first week in June.

Melon Stanley: *A. S.* We have written to our correspondent, Mr. James Page, who informs us that seed of Melon Stanley may be obtained from Messrs. Svensons, Fröhandel, Stockholm 2, and Messrs. Daenfldt, Fröhondel, Helsingbörg, both Swedish firms.

Names of Fruit: *F. K.* Probably a small fruit of Olivier de Serres.

Names of Plants: *D.* Pittosporum undulatum. *B. and W.* Pistacia Lentiscus; "Mastic" is obtained from this plant, a resin used in dentistry and in the manufacture of varnishes, and also used as a masticatory for preserving the teeth and gums.—*Inquirer.* 1, Cypripedium insigne; 2, Cypripedium insigne punctatum violaceum (one of the best forms).—*G. B.* Moschosma riparium.

National Diploma in Horticulture: *W. R.* Full particulars regarding the examination for the N. D. Hort. may be obtained on application to the Secretary, Royal Horticultural Society, Vincent Square, Westminster.

Primula obconica with a Fungous Growth: *R. A.* The plants are attacked by the Botrytis fungus. If you thoroughly cleanse the house and use potting compost from another source next season, it is not likely that you will be troubled with the disease again, provided you have robust specimens. The Botrytis fungus usually attacks plants that have become unhealthy through faulty cultivation.

Recent Plant-Collecting Expeditions in China: *R. K.* Mr. E. H. Wilson's first expedition to China was undertaken on behalf of Messrs. James Veitch and Sons in 1899. It was largely prompted by the many excellent plants sent over in a dried condition by Prof. Henry, and we believe the chief objective was to secure plants of Meconopsis integrifolia. Wilson made a second journey to China for the same firm in 1903, and he has visited that country on many other occasions. Other noted British plant-collecting expeditions in China have been conducted by Mr. W. Purdom, Mr. G. Forrest, Mr. R. Farrer, and by Mr. F. Kingdon-Ward, whose interesting narrative is being published in these pages.

Communications Received.—Shropshire—T. H.—J. S.—G. E.—C. M. C.—A. J. H.—R. P. B.—W. L.—R. J.—G. H. H.—F. W. J.—H. T.—A. H.—Vicar—A. P.

THE
Gardeners' Chronicle
No. 1883.—*SATURDAY, JANUARY* 27, 1923:

CONTENTS.

Alpine garden, the—
  Saxifraga Kellereri .. 47
America, notes from .. 51
Bees, foul brood in .. 43
Bulb garden, the—
  Ornithogalum nutans 47
  The Gladiolus .. 47
Campanula Telham Beauty 5
Currants, Black, big bud in.. 54
Daphne Cneorum .. 48
Epping Forest, new lake at 44
French exhibitions, forthcoming 45
Fruit wash, caustic .. 54
"Gardeners' Chronicle" seventy-five years ago 45
Gladiolus primulinus, earliest hybrids of .. 54
Glasnevin, notes from .. 45
Hardy flower border—
  Stevia paniculata .. 52
  Verbascum Miss Willmott 52
Hardy plants for sub-tropical effect.. .. 52
Horticulture afloat .. 48
Indoor plants—
  Buddleia asiatica .. 49
  Lapagerias 49
  Pelargoniums for winter flowering 49
  Red flowered Plumbagos.. 49
"Journal of Pomology and Horticultural Science" 43
Obituary—
  Hall, John 55
  O'Neil, B. 55
Perry, Mr. Amos .. 44
Plants new or noteworthy—
  Astilbe chinensis pumila 51
  Rubus robustus .. 51
Potato, degeneration of the 54
Richmond flower show .. 43
Rouken Glen Park, Glasgow 44
Royal Botanic Soicety's gardens 43
Royal Gardeners' Orphan Fund 44
Seed analysts, training and examination of .. 43
Societies—
  Cardiff Gardeners' .. 55
  Manchester and N. of England 55
  Newcastle and Dist. Hort. 55
  Reading Young Farmers' Club 55
  Sophronitis Lowii .. 44
Stock on scion, influence of 53
Thladiantha dubia .. 53
Tithymals 51
U.S.A., import regulations, concessions in .. 43
Vegetable garden—
  Cucumbers 54
  Onions 54
  The Yam 54
Ward's, Mr. Kingdon, seventh expedition in Asia 50
Week's work, the 46
Wisley, forthcoming trials at 44

ILLUSTRATIONS.

Astilbe chinensis var. pumila 51
Buddleia asiatica 48, 49
Heracleum giganteum 52
Perry, Mr. Amos, portrait of 44
Rubus robustus 50
Saxifraga Kellereri 47
Sophronitis Lowii 45
Thladiantha, tubers of 53

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 24, 10 a.m. Bar. 30.6; temp., 42°. Weather—Dull.

The Journal of Pomology and Horticultural Science. With the publication of the first number of Vol. III, the *Journal of Pomology*, which was inaugurated by Mr. Edward A. Bunyard, F.L.S., assumes a larger title and a wider scope. It is to include not only matters of pomology, but also those of other branches of horticultural science. All horticulturists will be glad to know that the *Journal* is to continue its special attention to the science and practice of fruit-growing, and will welcome the advent of a quarterly journal devoted to the interests of horticulture in all its branches. They will also be glad to learn that Mr. Bunyard will continue to edit the *Journal*. None has a sounder or wider knowledge of pomology and none is more devoted to the advance of that important art and science. Mr. Bunyard will be assisted by a Publication Committee consisting of Professor Barker, Professor Biffen and Messrs. Hatton, Taylor and Dale. The list of Associate Editors who will lend assistance to Mr. Bunyard includes the names of many distinguished men of science interested in horticulture, genetics and botanical science —Sir Daniel Hall—who writes an inspiring foreword for the present issue; Professors Bateson, Blackman, Farmer, Sir Frederick Keeble, Salmon, Theobald, and U. P. Hedrick, whose services to fruit-growing in the United States are appreciated no less in this country than in his own, and Messrs. Chittenden, Brooks, Bewley, Butler, Fryer and Franklin Kidd. These names will suffice to show that the *Journal* will do all in its power to include in its pages everything of importance in horticultural discovery. The Editor, in announcing the new development of the *Journal*, appeals for wide support, and particularly to practical growers whose observations and experience are of no less value to the progress of horticultural science than the discoveries made by professional investigators. Among the many advantages which will follow from the establishment of the *Journal* on its new basis is that the results obtained by the various horticultural research stations established by the Ministry of Agriculture—Long Ashton, East Malling, the stations at Cheshunt, and at Cambridge, will appear in its pages. This will prove of the greatest assistance to those who desire to keep abreast of horticultural investigations. Instead of being compelled, as heretofore, to consult numerous periodicals in which the work done at these Stations is recorded, they will find it conveniently assembled in the pages of the *Journal*. In conclusion it should be mentioned as a further reason why all horticulturists should support actively this *Journal* that all engaged in its production give their services without fee, so that the contributions received in the way of subscriptions may be regarded properly as a direct endowment of research. The larger the subscription list the smaller will be the drain on the resources of the several Research Stations responsible for the production of the *Journal*. The *Journal* is published quarterly by Headley Bros., 18, Devonshire Street, Bishopsgate, London, and the annual subscription is 15s. post free.

Training and Examination of Seed Analysts.—A second course of training will be given in the summer of 1923, beginning about the middle of July, at the Official Seed Testing Station, Cambridge, available for a limited number of seed analysts on the following conditions:—(1) The course will be limited to persons who satisfy the Chief Officer of the Station that they are fitted to take advantage of the course, and have been (*a*) nominated by seed firms who intend to offer employment to such nominees in their own seed testing stations, or (*b*) recommended by Universities, Agricultural Colleges and Institutions, or (*c*) approved by the Council of the National Institute of Agricultural Botany. (2) An examination will be held at the conclusion of the course and certificates will be issued to students who satisfy the examiners. The examination will also be open to practical seed analysts who have not attended the course of training, provided that they are nominated, recommended or approved as described in (1). (3) The fee for the training course, which will last for from four to five weeks, including the examination fee, will be £6 6s. The entrance fee for the examination alone will be £1 1s. (4) Persons wishing to attend the course and sit for the examination, or to sit for the examination alone, should apply for entrance forms not later than May 1, 1923, to the Secretary, National Institute of Agricultural Botany, Huntingdon Road, Cambridge, from whom particulars of the course of training can be obtained. In all cases students must provide their own accommodation at Cambridge, but they will be able to take their meals at the Institute Club, and the Secretary will, so far as possible, aid them in securing accommodation.

Importation of Plants, Bulbs, etc., into the U.S.A.—Modifications have been made in the U.S.A. Plant Import Regulations (Quarantine No. 37) since the visit to America by Mr. W. G. Lobjoit, Controller of Horticulture of the Ministry of Agriculture, in May last. These modifications extend the period during which Rhododendrons may be imported under permit, restrict the sizes of Rose stocks admitted, and modify the requirement as to removal of soil from the roots of plants so as to allow the use of other means beside washing. On October 30, 1922, a conference was held by the Federal Horticultural Board with representatives of the bulb interest. A list of bulbs which it was proposed should be added to the list of bulbs permitted to be imported was presented to the Conference, and after considerable discussion the list was reduced to the following:—Allium, Anemone, Begonia, Chionodoxa, Dielytra, Fritillaria Meleagris, Galanthus, Gladiolus nanus, G. cardinalis, Gloxinia, Iris, Montbretia, Muscari, Ranunculus, and Scilla.

Royal Botanic Society's Gardens.—We learn from the *Quarterly Summary* of the Royal Botanic Society that certain of the greenhouses in the gardens are being rebuilt. These include greenhouses Nos. 8, 9, and 10, and the work on No. 8 house is nearly completed. Movable staging is being erected in place of the old fixed stages. The Museum has been redecorated, and a small committee has been appointed to rearrange the collections. A portion of the Museum is set apart as a library. We learn that, owing to the drought of 1921 the fine colony of Lathraea clandestina in the shrubberies near the fence by the lake, which was illustrated in *Gard. Chron.*, May, 1907 (Fig. 126), has almost disappeared.

Richmond Flower Show.—We are glad to know that the show of the Richmond Horticultural Society held in 1922 was a great success, which is all the more encouraging, seeing that the exhibition of 1921, owing to the unprecedented drought, was almost a failure and resulted in considerable financial loss to the society. Special efforts were made last year to augment the funds, and an entertainment committee raised £106. Last year's exhibition was visited by over 3,000 visitors, and the entries numbered over 400, which was a record. At the annual meeting, which was held on Thursday, the 11th inst., the hon. secretary, Mr. W. W. Oakes, stated that they had paid all they owed and had a balance in hand. Mr. L. R. Russell, who has been a member of the committee for thirty years, was re-elected chairman for the ensuing year. The show for 1923 was fixed for Wednesday, July 11.

Worcester Auxiliary of the Gardeners' Royal Benevolent Institution.—During 1922 the Worcester and District Auxiliary of the Gardeners' Royal Benevolent Institution raised a sum of £115 for the parent institution, bringing the total contributions from the auxiliary since it was instituted to £2,500. During 1922 a sum of £62 was raised from visitors at Madresfield, Davenham and Ynys-y-Maengwyn gardens, which were kindly thrown open by the respective owners on behalf of the institution. The president of the auxiliary is the Right Hon. Earl Beauchamp, K.G.; the hon. treasurer, Mr. John White, Rupert Villa, Lower Wick, Worcester; and the hon. secretary, Mr. P. G. White, 51, Broad Street, Worcester.

Foul Brood in Bees.—The Ministry of Agriculture has issued a leaflet, No. 32, on foul brood, a disease affecting bees which spreads so rapidly by contagion that, in a single season, unless precautions are taken, the colonies in a whole neighbourhood may become affected. According to this leaflet two forms of foul brood have long been known to exist in Europe, a virulent or strong smelling, and an odourless form. A third type has recently been added; this is called sour brood, and it has usually been found associated with the strong smelling type. In the first two forms of foul brood, microscopic rod-shaped bacilli are present; these bacilli increase by cross-division, and have, under certain conditions, the power of forming spores. When stocks are found to be weak and are working languidly, with little desire to fly, foul brood may be suspected. In endeavouring to get rid of foul brood, efforts must be made to raise to a high standard the lowered vitality of the bees, which first enables the germs of the disease to develop. When the bee-keeper has been in contact with diseased stocks, the appliances used, and also the hands, should be washed with carbolic soap, or with a solution of one ounce Calvert's No. 5 carbolic acid in 12 oz. of water. Before washing the appliances and the hands with the disinfectant, all propolis, which is insoluble in water, must be removed by rubbing with a small piece of cloth saturated with methylated, or other, spirit. When the disease is discovered in a weak colony, the destruction of bees, combs, frames, and quilts, together with a thorough disinfection of the hive, is by far the best course to pursue. The spores are then destroyed, and the source of infection removed. The bees may be killed by pouring ½ oz. of saturated solution of cyanide of potassium into the brood chamber of the hive, turning back a corner of the quilts for this purpose, having first taken the precaution of seeing that the quilts fit properly, and also that the entrance is securely stopped up with earth to prevent the escape of the fumes. Another method is to sprinkle powdered sulphur on the fuel in the smoker, see to the quilts and block up the entrance with earth, as described above, then make a hole through the earth just large enough to admit the nozzle of the smoker so that the sulphur fumes may be blown into the brood chamber until all the bees are suffocated. When the bees are all dead destroy the combs, quilts, and dead bees by burning. This is best accomplished by digging a hole in the ground eighteen inches deep and one yard in diameter, in which the material is burnt. When this is reduced to ashes fill in the hole with earth so that the possibility of infection is entirely removed. Both these operations must be carried out at night, when the bees have ceased to fly. The hive should then be disinfected by scorching the interior with a painter's blow lamp, or, failing this, the interior should be painted with petrol or paraffin oil, which, when lighted, will disinfect by scorching the surface of the wood. After the outside has been well painted with oil paint, the hive will again be ready for use. In the case of mild attacks disinfection or fumigation may be resorted to with success, formaldehyde being the chief agent used. To accomplish this, tack a sponge or piece of flannel on the back of the division board and soak this every six days with 1½ oz., 40 per cent. formaldehyde, at the same time keeping a continuous supply of two balls of naphthaline in the brood chamber of the hive

Help for the Gardening Charities.—Mr. W. Auton, of Pyrford Court Gardens, Woking, has raised £42 on behalf of the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund. Mr. Auton held a whist drive to obtain money for expenses in connection with an entertainment held on January 11. The profit on the whist drive amounted to £7 17s., so that the whole of the money from the entertainment, as well as a small balance from the whist drive, was available for the funds. The entertainment was advertised in the local parish magazine, and both Lord and Lady Elvedon took a keen interest in the scheme, providing material from the garden for sale on a stall, besides contributing oddments for a rummage stall. The entertainment was a great success, and included a Punch and Judy show for the junior visitors, a musical entertainment, dancing and various competitions. The profits were divided equally between the two charities.

Rouken Glen Park, Glasgow.—Glasgow Corporation has decided to form a pond in the Rouken Glen Park. The pond, which is intended for rowing and motor boats, will cover five acres, and will cost approximately £11,500, exclusive of the erection of a suitable boathouse, etc. The Government Unemployment Grants Committee have announced a grant towards the scheme equal to 60 per cent. of the wages bill up to a limit of £2,850. It is calculated that the work will yield employment for between 100 and 150 men.

Various Trials at Wisley in 1923.—The Royal Horticultural Society will carry out at Wisley during 1923 trials of Dwarf Tropaeolums, Sweet Peas of carmine, deep pink, cerise, salmon and orange shades; Brussels Sprouts, Kales, Carrots (in the open), Climbing Beans, Onions, Vegetable Marrows and Cucumbers. Seeds should reach the Director on or before January 31, 1923.

Mr. Amos Perry.—Throughout the whole of his business life, Mr. Amos Perry, of the Hardy Plant Farm, Enfield, has been associated with herbaceous plants, alpines and hardy Ferns. After leaving Tottenham Grammar School, he entered Messrs. T. S. Ware's famous nursery at Hale, where he served a full apprenticeship and passed through the various departments, including those dealing with bulbs, seeds and sundries. Like his father before him, who was also for a long period associated with Messrs. T. S. Ware's business, Mr. Perry has an especially wide knowledge of hardy plants, including species, as well as the florists' varieties of the more popular groups of border flowers. It will be remembered that the late Mr. A. Perry, Sen., commenced business on his own account at Winchmore Hill. This increased so rapidly that it soon became necessary to take a larger acreage of ground to meet the increasing demands; consequently, about twenty years ago a considerable area of land was taken at Enfield, where about twenty-five acres are under cultivation, and contain one of the finest collections of hardy plants to be found in the country, and whence, before the American Quarantine Order came into force, many thousands of Delphiniums, alpines and other hardy plants were sent annually to the United States. For many years, and before Irises became so popular with growers, Mr. Amos Perry made a special hobby of these beautiful flowers, and he has raised many thousands of seedlings, several of which have obtained awards from the Royal Horticultural Society. On the occasion of his visits to the Iris Conferences in London and Paris last year, Mr. Wister, President of the American Iris Society, visited Mr. Perry's nurseries and subsequently expressed himself as "'perhaps more astounded by Perry's seedlings than anything else I saw on my trip, for he has as wonderful a patch of seedlings as anything I have ever seen, all of extraordinary height and good form.'" From this it will be gathered that, in the opinion of experts on both sides of the water, Mr. Perry is among the most prominent of raisers of these popular flowers. In 1914 he commenced to hybridise Liliums, and has succeeded in raising many distinct forms, including L. hybrida Amos Perry, L. gloriosum and L. pardal-Parryi, all of which have received recognition from the Royal Horticultural Society, and there are many other promising seedlings yet to be placed before the public. Another successful part of Mr. Perry's work has been among Oriental Poppies, and of these no fewer than eleven have obtained the Royal Horticultural Society's Award of Merit, including such popular sorts as Mrs. Perry, Queen Alexandra, Perry's White, Mrs. Marsh, and Lord Lambourne. Any mention of Mr. Perry's activities would be incomplete without reference to the extraordinarily fine collection of hardy Ferns he has brought together, including a number of his own raising. Few plants are more beautiful than Perry's No. 1 and No. 2 varieties of the plumosum forms of Polystichum angulare. For many years Mr. Perry has been a regular exhibitor at the principal London and provincial exhibitions, and in 1916, at the Holland House Show, he was awarded the Coronation Cup for the most meritorious group, in addition to a Gold Medal for perennials and a similar award for hardy Ferns. In addition to those already mentioned, Mr. Perry has distributed such fine plants as Achillea Ptarmica Perry's White, Aster Amellus Mrs. Perry, Coreopsis grandiflora Perry's White, Geum coccineum Mrs. Bradshaw, Helenium autumnale pumilum magnificum, Phlox canadensis Perry's variety, Dianthus Miss Gladys Cranfield, Spiraea venusta magnifica and Stokesia cyanea praecox purpurea.

MR. AMOS PERRY.

Royal Gardeners' Orphan Fund.—The annual general meeting of the Royal Gardeners' Orphan Fund will be held at "Simpson's," 100, Strand, London, W.C., on Thursday, February 8, 1923, for the purpose of receiving the report of the committee and statement of accounts for the past year; to elect officers for the ensuing year; to elect fourteen children to the benefits of the Fund; and to transact such other business as may arise. The chair will be taken at 4 p.m.

New Lake at Epping Forest.—Near Whipps Cross, on the edge of Epping Forest, the Corporation of the City of London is converting a considerable area of swampy land into an ornamental lake, which will serve for boating in summer, and possibly for skating in winter. This work is part of a scheme for reclaiming waste forest land, and has been put in hand to provide employment for several hundred men. The new lake will be within the boundary of the Borough of Walthamstow and in the part of the forest nearest the City of London.

Sophronitis Lowii. — The illustration in Fig. 20 represents the pretty and very distinct Sophronitis Lowii for which Pantia Ralli, Esq., Ashtead Park, Surrey (Orchid grower Mr. Farnes) received an Award of Merit at the Royal Horticultural Society on January 16. The flowers are clear chrome yellow and freely produced. Sophronitis Lowii was introduced by Messrs. Stuart Low and Co., who showed it on several occasions in 1908 and succeeding years, generally in February and March, when it was always an object of interest. The question of its standing as a species or a variety of S. grandiflora has frequently been discussed, and the weight of the opinion in favour of it being classed as a species has confirmation in the recognition of the R.H.S. Orchid Committee. The genus Sophronitis is a small one, and while S. cernua and S. violacea have well-defined, unmistakable characters, both in plant and flowers, the section now commonly known as S. grandiflora, and which shows great variations, has presented difficulties which even the best authorities have failed to elucidate. Reichenbach regarded the type as S. coccinea and separated the long-bulbed form now known as S. grandiflora, calling it S. militaris. The purple form known in gardens as S. grandiflora purpurea, he also gave specific rank as S. purpurea. Rodriguez distinguished the yellow form known in gardens as S. grandiflora Rossiteriana as S. Rossiteriana, and on these lines of general recognisable difference such classification renders identification of the type simple. It would be interesting to test by home-raised seedlings how the sectional characters originated. The various Sophronitis in cultivation are chiefly from the Organ Mountains of South America and are cool-house plants.

Forthcoming French Exhibitions.—The Société Centrale d'Aviculture de France is holding its annual exhibition in Paris from February 15 to 20, and there are to be classes for agricultural and horticultural produce, fruits and vegetables. The horticultural classes will comprise ornamental foliage plants, flowering plants, cut flowers, fresh and dried fruits and vegetables, etc. Two prizes, each of 500 francs, will be awarded, one in the plant, and one in the fruit and vegetable section. During the first four days of March, an exhibition of agricultural and horticultural produce will be held on the Allées de la Liberté at Cannes. There will also be classes for brandy. Olive oil, Orange flower water, honey, and other specialities of the Alpes-Maritimes. The exhibition will be followed by a fair, which will last ten days.

Appointments for the Ensuing Week.—Monday, January 29, British Florists' Federation annual meeting and dinner at the Connaught Rooms. Tuesday, January 30, Royal Horticultural Society's Committees meet; Yeovil and District Allotment Association's lecture. Wednesday, January 31, Mitcham, Tooting and District Horticultural Society's meeting. Thursday, February 1, Manchester and North of England Orchid Society's meeting. Saturday, February 3, Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Proposed Winter Garden.* We have just seen a circular issued by the Caledonian Horticultural Society the object of which, if carried out to its full extent, would undoubtedly confer on the lovers of flowers one of the greatest enjoyments which it is possible to conceive. It is the formation of a winter garden in their grounds of Inverleith, somewhat on the plan of similar establishments in Paris and London, forming a fine brumal promenade under glass. Here, during the chilly and dreary months of the year, would be brought together all the exotic plants which might come into flower in the various hothouses, and here they would remain while in beauty, giving place to others in succession. A plan, designed by the superintendents, has been approved of generally by the garden committee. It forms an elegant and commodious quadrangular structure, and is so contrived that one side only of the quadrangle may be erected at first, 140 feet in length by 35 in breadth. The heating is to be accomplished by means of hot water conveyed in pipes, and these are to be so disposed as to maintain the interior air at the temperature of the most genial climate. Mr. J. M'Nab proposes to arrange the various flowers so as to give effect to the different colours—a point hitherto little attended to. In short, if this "winter garden" be completed according to the wishes of its promoters, and be properly conducted, it will bid fair to prove as inviting a resort as the picture galleries, so attractive in this city.—*Edinburgh Evening Courant of January* 15. *Gard. Chron., January* 22, 1848.

NOTES FROM GLASNEVIN.

THE absence of prolonged severe frost during the last few weeks has induced many of the earliest flowering plants to open their blossoms.

Four Rhododendrons are now flowering, viz., R. davuricum, R. moupinense, R. nobleanum, and R. parvifolium. True, a few degrees of white frost will destroy the open blossoms, but fortunately, all the flowers do not open at once, and the next day's sun brings forth a fresh display. As companions to the Rhododendrons, the early Heaths are admirable and Erica darleyensis is surely one of the most charming of early flowering plants. Erica carnea, too, is very beautiful, and the named forms, such as King George, Queen Mary, Pink Pearl and others are, without question, decided acquisitions to the outdoor garden.

Berberis japonica, one of the finest of the Mahonias and a really handsome shrub, is now bearing its long racemes of yellow flowers. The form of which I write is that commonly known as Berberis Bealei, and is of vigorous habit, preferring, however, a position not exposed to east winds. Berberis nepalensis is another handsome Mahonia, which flowers somewhat later. It has much longer leaves than B. japonica, and is not so hardy. Here it grows vigorously, against a wall, almost too vigorously, as it frequently has to be reduced, yet it is not happy in the open.

Clematis calycina is now very lovely, bearing hundreds of its creamy white flowers adorned with numerous reddish brown spots within. Although it will flourish for years without much attention, where space is limited it pays to thin out the growths severely after flowering. The young, vigorous growths subsequently produced during the summer flower the following winter and spring with remarkable freedom. Clematis cirrhosa is a species of the same nature, but at Glasnevin has never grown with the same vigour. It, too, is flowering now, but the flowers are smaller than those of C. calycina, and are not spotted as in the latter species.

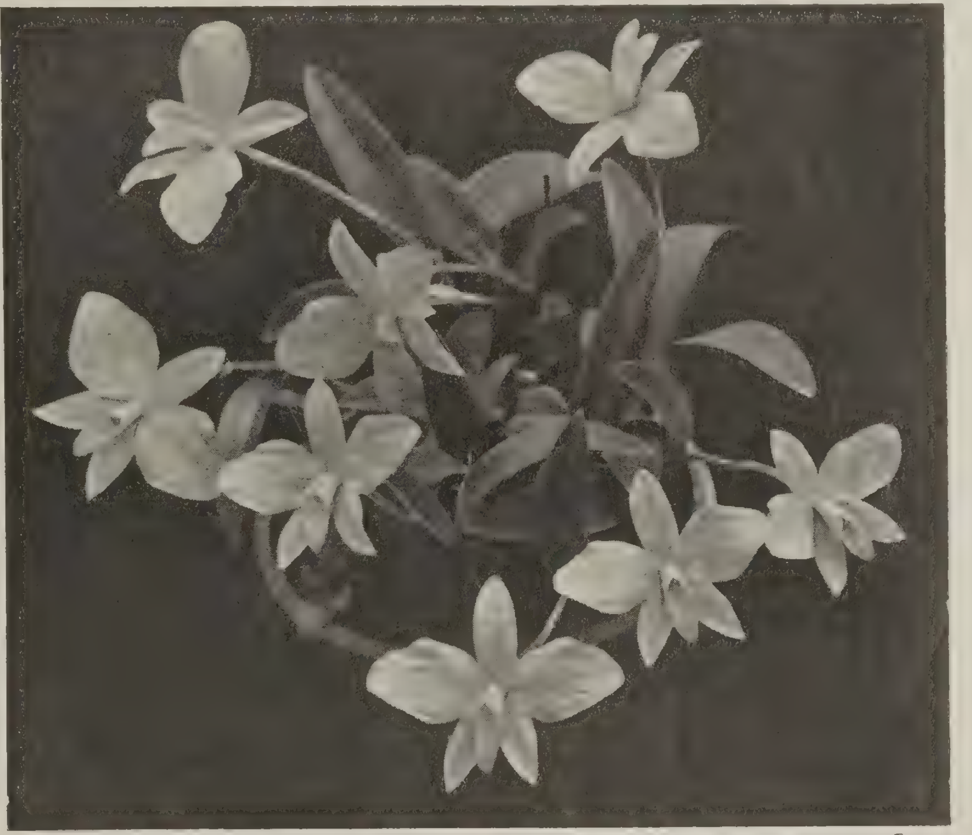

FIG. 20.—SOPHRONITIS LOWII: R.H.S. AWARD OF MERIT, JANUARY 16 (SEE PP. 40, 44).

Coriaria nepalensis is a vigorous shrub forming long, arching, Willow-like shoots during summer which in early spring produce long racemes of flowers from every node. From now onwards the racemes are very attractive, as the numerous stamens have a reddish tinge which immediately attracts attention. Some seven or eight species or varieties are grown here, the strongest growers being C. japonica, C. nepalensis, C. sinica and C. himalayensis, the last named having been obtained from a Continental source. Between the three last named I cannot detect any difference, and I think it is probable they are but forms of C. nepalensis.

Galanthus Elwesii is a remarkable fine Snowdrop when well established. A few hundred bulbs, purchased some years ago and planted in good soil in a bed of shrubby Spiraeas, have established themselves and are now flowering well and pushing up leaves like Emperor Daffodils. Crocuses have not been prominent during the last few weeks, but C. Fleischeri has been flowering, and C. laevigatus var. Fontenayi has been a mass of flowers, making a beautiful picture on a bright day—colour light lilac, the outer segments feathered dark purple.

Three attractive blue-flowered indoor plants are Coleus thyrsoides, Eranthemum nervosum, and Pycnostachys Dawei, the last somewhat "leggy," but suitable for standing on the floor of a warm house. The first two flower continually for many weeks, and are useful to give colour in the stove during winter. The Coleus is timed to succeed a batch of Poinsettias (Euphorbia pulcherrima), and is always admired by the public. Euphorbia fulgens planted out in a warm corridor is a revelation compared with pot-grown specimens. There, it forms numerous shoots six to eight feet long and flowers freely, the brilliant orange red flowers making a rare display.

Begonia Luzerne, with large, spotted leaves, and producing handsome pendulous clusters of pink flowers, also flourishes planted out in a warm house, and is rarely out of flower.

Orchids in flower are fairly numerous now and never fail to attract attention. Laelia anceps is one of the most useful kinds flowering in January. The old variety Barkeriana is still interesting and attractive, but excelled now by newer sorts such as Hardyana; Hilliana, white with rose tinting; Dawsoni, and Lady Chesham; many other improved varieties are grown where botanical considerations are not important.

A fine form of Laelio-Cattleya Luminosa × aurea, presented by Baron Schroeder, has been a source of admiration, as also have L.-C. Isabella, L.-C. Empress Frederick, and L.-C. bletchleyensis × Iris. Calanthes, naturally, are now in flower, notably C. Veitchii and C. William Murray. Coelogyne venusta grown in a basket and suspended from the roof makes a pretty picture with its numerous long, lax scapes of pale yellow, buff-tinted flowers.

Cypripediums (Paphiopedilum) are a host in themselves, and among many others the following are prominent:—C. Leeanum New Hall Hey var., C. Troilus Lord Nelson, C. Boadicea Rosita, C. Minos Youngii, C. Alcibiades magnificum, and C. Arthurianum pulchellum. Bulbophyllum comosum, producing an erect scape terminating in a nodding raceme of white flowers with long, narrow, ciliated segments, is curious and interesting. Sophronitis grandiflora is still one of the most charming of all Orchids, but less well known is S. violacea, with rather magenta-coloured flowers. *J. W. Besant, Glasnevin.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Spathoglottis.—Such species of Spathoglottis as S. aurea, S. Lobbii, S. Fortunei, S. Vieillardii, S. Kimballiana, S. plicata, with the hybrids derived from them, delight in the temperature of the warmest house when in full growth. These plants are often rested too severely, thereby causing a check, which, especially with S. Fortunei and S. Lobbii, may do irreparable harm. The plants should not remain dry for any considerable length of time, but be given sufficient water to keep them plump and healthy. Hybrids now pushing up their flower spikes need watering carefully, for with an excess of moisture there is a danger of the flower spikes damping off and the plants starting into premature growth. When the plants commence to grow they may be repotted in a similar compost to that used for the green-leaved Cypripediums. They should not be potted too firmly. They are not capable of withstanding strong sunshine; hence the necessity of shading them rather heavily during their season of growth.

Mexican Laelias.—Few Orchids compare with these beautiful Laelias and their hybrids for the production of flowers at this season, when those of Cattleyas are somewhat scarce. Their long spikes of flowers adapt themselves to most kinds of decorative work, and once their requirements are understood the plants are of easy growth. They often prove disappointing in the neighbourhood of large towns owing to fogs; but in country districts there are few plants to compare with them at this season. The coloured varieties are the first to open, followed by the white ones. Although not grown to the same extent as formerly, I still think there is room for them, especially the large, highly-coloured forms, such as L. anceps Chamberlainianum, and the white L. a. Schröderiana. As these Orchids delight in an abundance of light and air whilst making their growths the past season has not been exactly to their liking, therefore in some cases the plants may not be producing flowers so freely as usual. When a sufficient quantity is grown, the plants are best accommodated in a house to themselves, so that the proper conditions of growth may be given them. When their flowers are over they should enjoy a short season of rest by keeping the roots dry, and then, when it is observed that they are about to develop fresh roots, any necessary repotting may be undertaken.

Repotting Laelias.—Some time previous to the roots being developed, a number of small outgrowths will be observed on the rhizomes; these are caused by the roots pushing forth, and that stage is the best time to repot them. Good, coarse Osmunda fibre in rough lumps provides the best possible compost, which should be placed in the pans (the best receptacles) quite firmly. Water should be applied with caution until the new roots have grown freely in the new material, afterwards every encouragement should be given the plants to enable them to build up strong and robust growth.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Apricots.—In the colder districts these fruits are the better for protection. Where planted in unheated cases, the surface of the border will need attention; a sprinkling of spent lime rubble, or, failing this material, slaked powdered lime should be lightly forked in, after which a good watering may be needed. Plenty of ventilation should be afforded at all times. The Apricot is much subject to "die back" disease. Great care should be taken that no shoot is tied too tightly, and that sufficient space is allowed for the bark to swell. Injury to the bark is very detrimental to these fruits, and gumming soon sets in after an injury. Of varieties Moorpark is probably the best. Hemskerk much resembles that variety, and is a good grower and cropper, the fruits being of good flavour. Peach and Kaisha are also good cropping varieties. The tying in of the young wood and a moderate restriction of the spurs should be practised.

Pergolas and Espaliers.—In training fruit trees of this description, prevent the young wood being damaged by the wind rubbing the bark against iron trellises. In spur reduction air space should be allowed for fruits to develop without an undue crop of foliage, the branches being cut back to one or two eyes according to their position. Never permit the bark of fruit trees to come in contact with iron. If wire is used thin sticks may be fixed in position in the case of newly-planted pergola trees to train the shoots over the wires. As the season advances the roots of late-planted trees should be dipped in muddy water thick enough to adhere to the roots. Often trees are taken a considerable distance to their planting station, in a drying atmosphere, from where they have been laid in. We have been very successful in treating lifted annual plants in this way. Preparations should be made, where re-grafting is practised, for undertaking this work. Procure or select the desired grafts, and heel them in the soil in a cool part of the garden.

Raspberries.—In making new plantations of Raspberries the ground should be trenched deeply and manured heavily, as these fruits appreciate deep cultivation and rich surface mulchings. Plant the clumps in rows 6 feet apart, afterwards cutting the stems down to within 1 foot or 2 feet of the ground. Of varieties Superlative still holds favour. Lloyd George is a new large and free cropping variety; it fruits on the young growths, and is both a summer and autumn fruiter.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Solanum capsicastrum.—This Solanum, with its bright fruits, is always popular for winter decoration, and good plants for next autumn and winter may be raised from seed sown at this date in a warm house, or they may be raised from cuttings. The young plants should be stopped several times to promote a bushy habit, and they may be grown in pots or planted outdoors for the summer. If it is desired to retain the old plants, they should be cut back and started into growth in a house having an intermediate temperature.

Ardisia crenata.—This is one of the most useful of berried plants for conservatory decoration, as it keeps in good condition for at least six or eight months and is always attractive with its bright red fruits and dark green, glossy foliage. One disadvantage to its cultivation is the fact that it requires three years from seed-sowing before the plants are a suitable size for decorative purposes; for this reason a successional batch should be sown each year. The present is a suitable time to sow the seeds, and as they are rather hard, their germination will be hastened if they are soaked for twelve hours in warm water, afterwards plunging the seed pots in a warm propagating case. Plants raised from seed sown last year should be shifted into three-inch pots; in their third year they will require five-inch pots, in which sized receptacles they will flower and fruit.

Rivina humilis.—This is another pretty fruiting plant which is useful for the decoration of the conservatory; if seed is sown now, the resulting plants grown on in six-inch pots will make useful specimens for flowering in late summer and autumn. This plant grows well in a house having an intermediate temperature, and its successful cultivation presents no difficulty. It is also easily propagated by means of cuttings, and the plants raised in this way are, if anything, more compact in habit than seedlings.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Tomatos.—Autumn-raised Tomato plants should be ready for shifting into five-inch or six-inch pots, using a light, friable compost with the addition of a little wood ash and half-inch lumps of charcoal. Stand the plants on a shelf in a moderately warm house, and do not over-water them. Place a neat stake to each plant, and tie the stem loosely. Admit air during favourable weather to keep the plants sturdy. Sow a few seeds of an early variety to raise plants for a succession. Slightly cover the seeds with fine soil, water the latter and place the pots in the propagating frame, covered with a sheet of glass until the seeds have germinated, when the pots should be transferred to a shelf in a greenhouse.

Cucumbers.—Where plenty of heat is at command, seed may now be sown to raise plants for producing an early crop. Use small pots and a compost consisting of sifted loam and leaf mould. Place each seed edgeways in the soil, and press it down gently. It is important to emphasise the placing of the seeds edgeways, and the thin end downwards, otherwise they are liable to rot. They will not require water if the soil is moist. Plunge the pots in a mild hotbed made in the propagating frame and cover them with brown paper. As soon as the seedlings are through the soil remove them to a light position and water them with extra care. Place a small stick to each plant as required.

Salad Plants.—Sow a few seeds of Cabbage Lettuce, such as Commodore Nutt or Golden Ball, to raise plants for growing in frames on hotbeds. Germinate the seeds in a warm frame or house. Continue to lift plants of Endive and Chicory, and place them in a dark corner of the Mushroom house, or under the stages in the greenhouse, to blanch. By introducing batches at intervals of ten days or so, sufficient of these salads may be had for use until the Lettuces are ready. Radishes may also be sown in the frames prepared for early crops, on hotbeds. I prefer to sow these in shallow drills by themselves, in small quantities at intervals, as they will stand quicker forcing than some other vegetables. Water the soil with tepid water, and keep the frame closed until the Radishes appear, then admit air sparingly. Mustard and Cress should be sown once a week in boxes of sifted loam and placed in a warm house. Press the seeds into the soil, but do not cover them.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Peaches and Nectarines.—These trees should be pruned and all growths detached from the wires, preparatory to thoroughly cleansing every portion of the house. If the trees are infested with insect pests they should be sprayed with an insecticide before tying out the trees. In training the trees allow the young growths ample space, as overcrowding not only causes the shoots to become weakened, but favours an early attack of red spider. Trees showing signs of ill-health may, in many cases, be brought back to a vigorous condition by carefully lifting the tree, notching at intervals any thick roots devoid of fibres, and inserting a small stone or similar material to keep the incision open. Carefully replace the tree in position on good loam, adding some old plaster rubble and wood ash to the staple. Cover the roots—which should be kept as near the surface as possible—with some new soil, adding a little bone-flour to favour the development of rootlets. A thorough soaking of water will settle the soil, but allow time for further settlement before training the tree in position. Exhausted trees should be promptly cleared out of the house and fresh ones substituted. The borders should be cleared of any loose material and dressed with a concentrated fertiliser and good loam. Young trees that have made extra vigorous growth will not require manure, as it would only tend to promote further grossness.

If the borders are filled with roots, they are better left undisturbed, otherwise the surface may be lightly forked over previous to adding the loam. Before starting the trees give the border a thorough soaking with water to ensure the soil being thoroughly moistened right through to the sub-soil. At no time should the soil be allowed to approach a state of dryness. Keep the house as cool as possible until the trees are started.

Late Vines.—All bunches of Grapes should now be cut from the vines and placed in bottles of water in the Grape room. In cutting the bunches allow a sufficient length of shoot to ensure the berries hanging quite clear of the bottles. The latter should be filled with soft water, adding a few lumps of charcoal to keep it sweet. Cut out any bad berries, and periodically examine the bunches for the removal of decaying berries. After the Grapes are cut the vines should be pruned and cleaned; if they are free of insect pests, merely remove the loose bark, but if infested with mealy bug and red spider more drastic measures are required. In that case all loose bark on the spurs and main stem should be carefully removed and the vine thoroughly dressed with a suitable insecticide, taking care not to damage the buds during the operation. The house should be thoroughly cleansed and the walls limewashed. Apply paraffin to all nooks and crannies by means of a paint brush; this will destroy any insects which may be hibernating therein. Clean the border and top-dress it with vine manure, pricking this in with a fork as deeply as possible without damaging the roots. The vines should then be rested completely until the house is started again.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Tree Supports.—It is a good plan to examine all tree supports during the winter and make good defects, whether of stake or tying material. Any breakages in pergolas and arbours should also receive attention now while work in general is not so urgent as it will be later. Boughs of special trees that are in danger of splitting away from the main trunk or sagging too low should be propped up from the ground, or secured with chains or wires to higher branches, first giving adequate protection to the bark.

Certain Seeds to Sow Now.—In some gardens Antirrhinums for the summer display are raised from seeds sown the previous August. Where this course is not followed a sowing made now should result in the best of plants if proper treatment be given the seedlings. Sow the seed in boxes or pans, allowing it to germinate on the shelf of a recently started fruit house, or in a gently heated greenhouse. Directly growth is strong enough to allow of handling the seedlings prick them out into other receptacles and grow them steadily, for overheating the house only results in miserable, spindly specimens. As growth develops increase the amount of air, place the plants in full sunlight and early in April they will be strong enough to bed out. Begonias may also be sown now—more especially those of the tuberous-rooted section, as the plants require considerable time to become established. Not having sufficient cuttings rooted of Salvia Zurich we are sowing to supplement the stock, ready for planting at the end of May. A little bottom-heat will hasten germination, though it is not essential. When the seedlings have made four to six leaves they should be transferred to 60-sized pots, then gradually hardened. This scarlet Sage comes so true from seed that cuttings need not be rooted in the autumn, unless it be to perpetuate an extra good form or gain a few days in earliness of blooming. An early sowing of Sweet Peas is advisable now; place three or four seeds in a 3-inch pot. Raise the seedlings in gentle warmth and transfer them, when they are through the surface, to a cool quarter to continue growing slowly until they are planted out-of-doors. An alternative method is to sow several seeds in a 5-inch pot, duly harden the seedlings and plant them separately.

THE ALPINE GARDEN.

SAXIFRAGA KELLERERI.

The Engleria Saxifrages, as a race, are more notable perhaps for beauty of form, quiet charm, and an air of good breeding, than for any flamboyant brilliance and general decorative value in the garden. They will always be grown rather by folk who love and understand plants, than by those who use plants for their decorative effect. In nearly all the Englerias the petals are conspicuously small. The plants depend for any show they make at flowering time upon coloured bract and sepal and flower stem rather than upon petal.

When Saxifraga Griesbachii, the most showy of all the race, pushes up to flower, it develops a thick arched crozier of crimson-scarlet velvet, in splendid contrast with the brilliant, silver, starfish-like rosette of leaves, and you think "What a glorious flower!" But the petals are so tiny that they are only to be seen on close examination. Hybridists, however, have, during recent years, raised some interesting crosses between Engleria and Kabschia Saxifrages, one or two of which combine the beauty of leaf-rosette and velvet flower stem of the Englerias, with some of the size of petal of the Kabschia parents. Saxifraga kewensis rosea is a charming example of such a break. It was raised at Kew by Mr. W. Irving, and is own brother to Saxifraga Irvingii. S. Frederici-Augusti was the male parent, and S. burseriana macrantha the mother, and from this union came S. Irvingii, which in effect is a S. burseriana with some of the pink petal colouring of S. Frederici-Augusti, and S. kewensis rosea, which is an Engleria with some of the size of petal of S. burseriana added. But whereas S. Irvingii has multiplied exceedingly and become the popular plant its exceptional charm deserves, S. kewensis rosea is slow of increase, and will always remain a rare treasure.

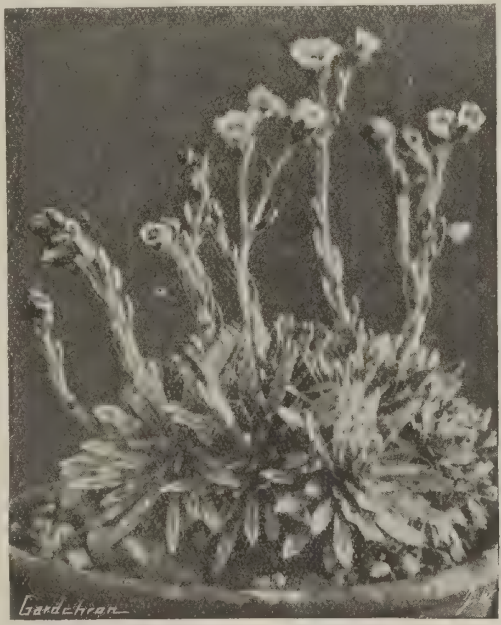

Fig. 21.—Saxifraga kellereri.

Saxifraga Kellereri is an Engleria-Kabschia hybrid, rather in the style of S. kewensis rosea. It was raised at the Royal Gardens at Sofia, by Herr Kellerer, gardener to King Boris of Bulgaria, and its parentage is S. burseriana × S. Stribnryi. The leaf rosettes are curiously and handsomely spiky, well silvered, and for an Engleria, they multiply with encouraging freedom. The flower stems, bracts, and calyces are thickly clothed with a velvet fur of soft, glandular, reddish hairs. The bracts are red, green tipped and slightly silvery. The 2-3 inch flower stems are branched, and carry from three to six exquisite flowers, three-eighths of an inch across, with petals of a soft clear Peach-blossom pink. The red velvet calyces are green-tipped like the bracts on the flower stems, and gracefully recurved like the lip of an urn.

Saxifraga Kellereri is perhaps the earliest flowering of all Saxifrages. The specimen illustrated (Fig. 21) was photographed in an unheated Alpine house on New Year's Day, and on January 10, there were still more than two dozen buds to open, and the first flowers were as beautiful as when they were photographed. The Engleria Saxifrages are ideal plants for the cold Alpine house, where they flower to perfection in the first months of the year, and where their quiet charm may best be appreciated. This is not to say they may not be grown, and well grown, in the open air. Sheltered pockets of gritty, limy soil suit the Englerias excellently, or a quiet corner of the moraine. If a position shaded from the south and east can be provided, so much the better, for it is important that the flowering should be retarded so long as possible, and that morning sunshine should not shine upon frosted spikes. The hybrid Engleria Saxifrages cannot be relied upon to come true from seed, and true stock can only be obtained by cuttings or divisions of the true plant. *Clarence Elliott, Stevenage.*

THE BULB GARDEN.

THE GLADIOLUS.

Most members of the Gladiolus family are natives of Cape Colony. About 1700 Ray mentioned some half-dozen varieties, and Miller, fifty years later, was able to swell the number considerably, and he described thirty or more varieties.

In 1795 Cape Colony was ceded to Britain, and a great impetus was given to the cultivation of Cape plants. Still, the Gladiolus was not prolific in new varieties, and beyond the memorable introduction of G. brenchlyensis, which was raised in Brenchley about 1848 and is still in cultivation, nothing exceptional calls for notice. However, as previously stated, the Gladiolus seems to have jumped into prosperity and popularity all at once. Almost every colour is now available, and with the recent advent of G. primulinus, as a parent, there is a greater range of colour and diversity of flower.

The culture of Gladioli is simple, and practically the same for both the early and late varieties. The former may be planted about February, and the latter during March and April. Although a light soil is preferable, they will do well in somewhat heavy land. Last year I saw some magnificent blooms on plants growing in clay soil, and within five or six miles of London Bridge—blooms which, I am sure, could not be beaten. Let the corms be planted in a sunny position some three inches deep and a foot apart, and keep the weeds down. A little superphosphate added at planting time, is beneficial later. It will be necessary to give some support to the plants if the locality is a windy one.

The corms may be lifted about October, but there is no hurry for this operation because the new corms, which develop on the top of the old one, will continue to increase in size until the parent corm is exhausted and greatly shrunk. The new corms, which will have multiplied considerably, may be dried off and planted in due course. *T. D. T.*

ORNITHOGALUM NUTANS.

It is now many years since I first met with Ornithogalum nutans in an old garden, where it was cultivated without name, and I was so greatly pleased with it that I lost no time in searching for its name and securing a few bulbs for my own garden. It is particularly pleasing because of the silvery or satin-like sheen on the flowers, caused by the band of palest green which runs down the outside of each segment of the flower. I have not found Ornithogalum nutans increase with the rapidity of O. umbellatum, yet it has certainly increased wherever I have grown it, but not to anything like the same extent as O. umbellatum and some other species. It seems to be absolutely hardy. *S. Arnott.*

HORTICULTURE AFLOAT.

I have worn the uniform of a sailor and the blue serge apron of the gardener—now I wear them both together; in short, I am a horticultural sailor—or sailor-gardener. My work does not consist in looking after the marine flora of the Atlantic Ocean, neither do I train Ivy up the for'ard mast, as some humorist has suggested. I am merely a sailor-gardener and I tend the garden of the ship—the Cunarder, R.M.S. "Berengaria." I am the standing joke of the ship's company, and when they tell their wives and families that there is a gardener aboard there is a general laugh, for they are not believed. That is why I have been prompted to write this note; to show that, although unique, my position is tangible.

The funny person who pasted on my cabin door a liner surrounded by a water-can, supported by crossed rake and telescope—motto on scroll, *Aqua, Hortus unitas*—apart from his hazy knowledge of languages, has, I think, put the whole matter in a nutshell. Nevertheless, it may interest readers if I outline the routine of work, the class of plants used, and the effects of the elements as well as the treatment of the passengers upon them.

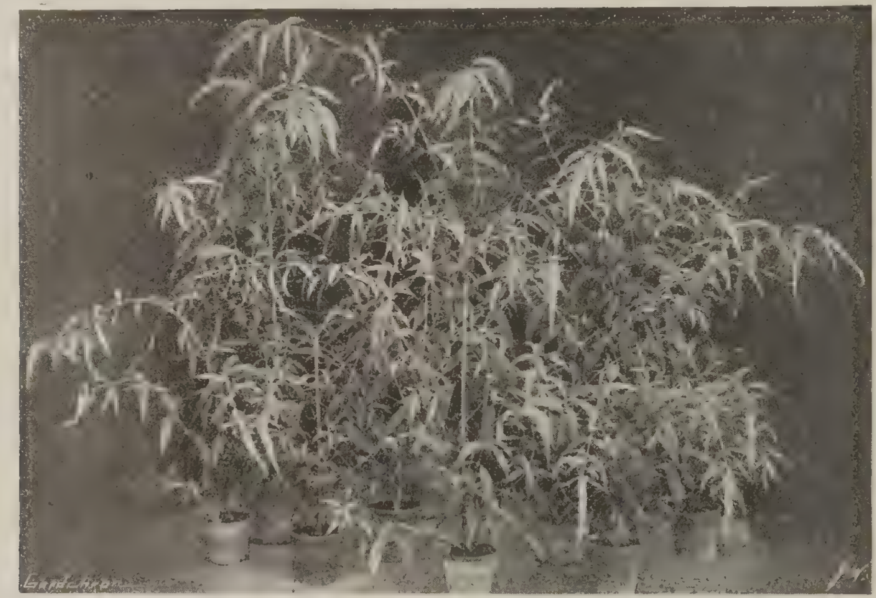

Fig. 22.—Buddleia asiatica; flowering in a greenhouse at Christmas time (see p. 49).

Firstly, I would like to comment on the quiet grandeur of the appointments of the "Berengaria," and the ornate and colourful furnishings. The ship breathes an air of elegance, and her size alone would make her remarkable, as she is 919 feet long, with a tonnage of 52,000. The towers of the Woolworth building, N.Y. City, could be laid cozily to bed in her hold, and that same great size lends palatial dignity to her foyers, corridors and public rooms, and forms a regal background for countless Palms, trees, shrubs and a huge display of flowers.

The main public rooms are the Palm Court ball-room, lounge, library and smoke rooms. All these apartments are liberally supplied with flowers and plants, each having its own definite colour scheme that blends with the character of its appointments.

In the ballroom are four baskets of gilded wickerwork, each containing a Palm, and bright with pink Azaleas peeping out of Fern and Asparagus Sprengeri. Flanking the marble entrance steps stand Phoenix rupicola in tubs, whilst at the further end the eye catches a glimpse of a gorgeous bank of flowers and greenery backed by a latticed mirror. Here will be found pink and white Azaleas, backed by white Chrysanthemums and scarlet Poinsettias, and edged with Erica hyemalis and Asparagus Sprengeri. Around the foot of the marble pillars that support the dome of stained glass are fragrant pink Hyacinths arranged in Moss, and suspended above are baskets of Pteris Wimsettii and Asparagus Sprengeri.

The Palm court contains a goodly collection of interesting and graceful subjects, the larger specimens in brass-bound mahogany tubs, the remainder in fireclay jardinieres. Flanking the central walk are six Kentia Forsteriana, three on either side, all well over 20 ft. high and forming the basis of the decoration. On either side of the two plate-glass entrance doors stand Phoenix rupicola, placed at regular intervals over the floor space, while among the tables and stairs are specimens of Kentia Belmoriana and Phoenix sylvestris, each forming a centre-piece for a group of flowering plants and Ferns. On the pillars are Lapagerias and Solanum Wendlandii, whilst in each corner, supported by a pedestal, is a specimen of Kentia Forsteriana.

The main floral feature of the court is the fountain and marble vase which stands in the centre, surrounded by a marble kerb. Here are to be found Chrysanthemums, Azaleas, Begonias (Gloire de Lorraine), Ericas, Hyacinths, Tulips (Duc van Thol), standard Conifers, Ficus elastica, Araucaria excelsa, and Ferns of many kinds. This centre-piece, together with the four groups against the four walls, create a pleasing effect under the graceful leaves of the overhanging Palms.

In the lounge there are table plants, and around its concert stage are tall Codiaeums, Kentias, and a bank of flowers. The bandstand in the saloon is similarly treated, and the numerous other public rooms in all classes are supplied with table plants and freshly cut flowers.

On the grand staircase there are Bay trees in tubs, standards (tall and short), pyramids, and bushes in all shapes. On each landing there is a group of flowers, and Palms by each elevator gate, whilst dotted about the landing square are numerous examples of Box and Laurels in tubs.

The private suites are all liberally furnished with plants, and each state-room has its vase of fresh flowers; incidentally, each dining-saloon table has its flowers, and there are plants and foliage on the buffets and sideboards. The table flowers and special decorations come under my charge, and during the busy season form a very large item in the day's work.

The wind does not affect the plants a great deal, neither does the sea air, as both of these are practically excluded. The main trouble is rough sea. If the ship has a tendency to pitch or roll, the larger subjects have to be lashed up and the smaller ones blocked and weighted. Of course, should the heavy sea start during the night, the possibilities are that Palms get mixed up with tables and chairs in a corner, and other plants are found gyrating around the deck. But such happenings are very rare with the "Berengaria," as she is remarkably steady in the roughest of seas and seldom rolls at all. The atmosphere is responsible for a great deal of damage. Roses, for instance, die in a few hours in the heat of the saloon. Carnations and Chrysanthemums are the most suitable flowers for such work, and are used as largely as possible, although, unfortunately, Roses are usually present in most of the private bouquets and baskets that are put under my care for the voyage.

The little Ferns in small 60's, which I have in the saloon on the tables, are very difficult to preserve. Asparagus Sprengeri, too, is a trifle troublesome, as it is apt to turn yellow and drop its leaves. The most useful table plant is the good-tempered Aspidistra. It stands any amount of rough usage, and is largely used in the third-class dining saloon, where it receives the attention of both waiters and passengers, who give the plants liberal supplies of coffee dregs, tea leaves, the drainings of beer bottles—in fact, any useless liquid usually finds its way into the pots of the long-suffering table plants, and still the Aspidistras look pleasant, whilst their less fortunate neighbours expire without protest.

The Palms are sponged before each trip, and the Bay trees receive a spray of soft soap, washed off with scented disinfectant, as germ-carrying dust readily accumulates on the leaves.

The roots of Bay trees require a lot of water, and during the trip are attended to twice daily. They stand the heat very well indeed, and give the stairways and corridors a fresh and bright appearance at all times. As a manure I use Clay's Fertiliser at the rate of two teaspoonfuls to the two-gallon can, dissolved in the water, for the flowering plants and Ferns, every third day, and as a top dressing to the Palms and Bays once every trip.

The Bay trees on the main companion-way receive other feeding in the form of matches, cigar and cigarette ends, but whether these have a beneficial effect or otherwise I cannot say.

However, my job is "not too bad," and with great care I usually manage to make my supply of flowering plants last the eighteen days' voyage, and that is all that is required of me as sailor-gardener to the largest liner in commission. *W. H. Lampard.*

DAPHNE CNEORUM.

This Daphne is one of the very best low-growing shrubs. Its dark green foliage and terminal heads, smothered with bright rose-coloured flowers with a powerful fragrance, attract the attention of everyone when the plant is in bloom. Nothing is more beautiful in the rock garden; it is equally good when grown in a border. In a garden of which I had charge in North Hants, the soil was a dry, sandy one, inclined to peat. There this Daphne grew amazingly well, many patches, three to four feet across, filling the air with the strong perfume. No plant I know dislikes chalk or lime more than this Daphne.

In the West I could not get it to grow through the garden being on the side of a chalk hill, the water from the chalk soaking into the soil. I had large holes made in some beds, filling these with peat and rotted leaf-mould. In this they made a fair amount of growth for a couple of seasons, then they got into a bad condition, neither dying nor growing, so I gave up their cultivation.

When the plants get aged and worn lay the tops of the young shoots in sandy soil, leaving them for two or three years, when they will make fine young specimens. I always found when the plants had attained age they transplanted unsuccessfully, whereas young ones soon establish themselves after re-planting. *J. C. F.*

INDOOR PLANTS.

LAPAGERIAS.

ALTHOUGH these beautiful, evergreen plants were introduced many years ago from Chili, they are still amongst the most useful of indoor climbers, their deep rose, crimson, and pure white bell-shaped flowers, borne in dense clusters, producing a fine effect when hanging from rafters of a cool greenhouse or conservatory. The plant succeeds best when planted in a good depth of soil composed of a mixture of large pieces of fibrous peat, a little light turfy loam and silver sand, with pieces of charcoal if procurable; the loose, fine soil should be removed by passing it through a fine sieve. Provide good drainage, using large, clean, broken crocks, bricks, and lumps of charcoal at the bottom, strewing over these materials smaller crocks until the large ones at the bottom are just concealed, then cover the drainage with a layer of the large lumps of turfy soil. The plant may then be inserted; next place another layer of rough soil all around the crown of the plant; spread out the roots, being careful not to bruise or break them. Add another layer of soil and press it well about the plant, then place the final layer of compost, pressing it firmly, and leaving the surface level. Water the soil moderately at first, but when the plants are established they should be given copious supplies of water. It is advisable to give the roots a good watering every spring because they sometimes become dry underneath if the border is well drained.

The plants require to be well shaded from the sun and given plenty of moisture.

The winter or early spring is the best time to plant them, as that allows an opportunity for the soil to settle before growth commences and fresh roots develop.

Good specimens can be grown in pots or tubs, but the difficulty of growing them in pots is that they make an abundance of strong roots, and the points of these are so tender that they soon find their way through the drainage holes, and almost invariably die off as soon as they become matted together in the drainage.

For planting, select strong, healthy specimens with good crowns; these will soon throw up young shoots. When the shoots become 3 inches to 4 inches high tie them to strands of rough, soft twine; they will cling to the twine and soon run up the rafters or roof of the house. The red and white varieties grown together give a fine effect in the conservatory when in flower. L. r. alba has lovely, pure white flowers that are invaluable for the making of wreaths and other floral designs. L. rosea has deep rosy red flowers. L. rosea superba is a bright crimson variety. There are several large, richly-coloured sorts: one of the best is the Nash Court variety, which has extra large, brilliant crimson flowers. Many growers have an idea that the white Lapageria is more difficult to cultivate than the red form, but that is erroneous, as the white kind is as free flowering and vigorous as the red. The red varieties may be increased by seed, but seedlings cannot be relied on to come so fine as the original. L. r. alba does not come true from seed; the seedlings of this form invariably develop flowers of a blush colour, proving that it is a sport from the red. When the two forms were crossed the result was not a success, for the progeny produced blooms of light pink shades.

Lapagerias are difficult plants to increase by cuttings on account of the wood being so hard. The best plan is to propagate them from layers. Select well ripened shoots, bend them down to the soil, twist them round carefully, taking care not to break the shoot, with the object of checking the flow of the sap, and inducing the layers to take root at the eyes; peg the shoots firmly to the soil, cover the eyes and a small portion of each leaf with silver sand, then bury the whole shoot with sandy soil until the leaf when erect is quite two-thirds covered, only leaving a small portion showing above the soil. Press the latter firmly to make the layer secure, then give a good watering to settle the soil.

It is not advisable to resort to tonguing or slitting the shoots, as the branches are too brittle for that operation. In layering do not select strong shoots, the medium-size ones giving the best results; only an eye here and there will throw up growths.

The plants will succeed in a cool, shaded part of the house. Fumigate the house occasionally to keep down thrip and green fly; the latter is fond of the young, tender growths and soon cripples them. A winter temperature of 40° to 45° suits Lapagerias well.

The Lapageria has not proved itself amenable to hybridisation. There is one very remarkable bigeneric hybrid named Philageria Veitchii, which was raised from Lapageria rosea, crossed with pollen of Philesia buxifolia. In habit this hybrid is intermediate between the two parents, though rather more akin to the female than the male. *John Heal, V.M.H.*

BUDDLEIA ASIATICA.

I AM sending a photograph (see Fig. 22) of a group of plants of Buddleia asiatica, grown in these gardens, as I hope it may interest readers of the *Gardeners' Chronicle*. This plant does not seem to be very well known, and considering its grace and the fragrance of its flowers, also that it is a good plant for room decoration, it deserves to be more widely grown.

The plants illustrated were raised from cuttings rooted in April. They were grown on and gradually hardened off in a frame, but during the summer the lights were left off entirely so as to expose the plants to full sunshine and air. It is best to plunge the plants, as this prevents the roots from drying too frequently. At the end of the summer the plants were placed in a warm greenhouse, where they commenced to flower in December. We have also one plant trained against the back wall of the greenhouse, and this gives us a quantity of spikes (Fig. 23) for cutting for house decoration. *Geo. Ellis, Wykeham Abbey Gardens, Wykeham, Yorks.*

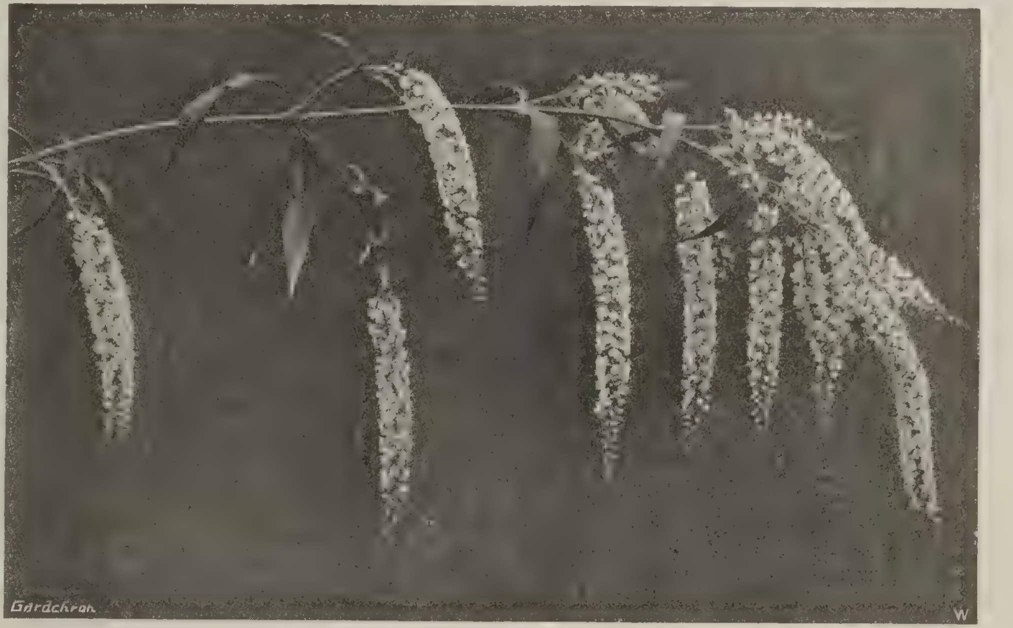

FIG. 23.—BUDDLEIA ASIATICA; FLOWERING BRANCH.

PELARGONIUMS FOR WINTER FLOWERING.

THE present is a suitable time to insert cuttings of Zonal Pelargoniums intended for flowering indoors in winter. The cuttings should be inserted singly in small, 60-sized pots, standing them on a shelf near to the roof glass. When rooted and growing freely, the tips should be pinched out. Their next shift should be into 48-sized pots, when they may be stood in cold frames. During the summer they should be grown in the open on a bed of ashes, in a sunny situation, where the wood will get well ripened. Their final shift should be into 6-inch pots. The compost for this potting should consist principally of rich loam of a medium texture, as this rooting medium favours the development of firm growth, which is important for winter flowering. In the immediate neighbourhood of London, Zonal Pelargoniums are hardly worth growing for winter flowering, as one night's fog is sufficient to ruin them. *J. C.*

RED FLOWERED PLUMBAGOS.

THROUGHOUT the dull period of the year every flower is valuable, and none more so than those that are red coloured. For this reason Plumbagos of the P. rosea group are useful. Instead of flowering in clusters like P. capensis, the so-called "scarlet" kinds produce long, slender spikes. From spring rooted cuttings the number of growths will average about five, and they will be about three feet tall. The usefulness of the plants and also the spikes when cut, for house and table decoration, is considerable, for few flowers remain fresh longer. But when required for any special occasion in either form, they must be given twenty-four hours in which to become acclimatised to their surroundings. The reason for this is that very soon after being taken from the flowering house, the spikes assume a very dejected look, and the individual flowers practically close up, but after the time stated they fully recover.

The stove of pre-war days used to be considered essential for these Plumbagos, but experience has proved that a house ten degrees lower in temperature leads to better results, as it is impossible to keep young plants a reasonable height in a hot and humid atmosphere.

After flowering the growths should be cut well back. When they show signs of breaking into growth, spraying overhead acts as an encouragement. Cuttings root readily in sandy soil, over a bottom heat of about 65 degrees. As nothing is to be gained by over potting, the young plants may be placed direct into the pots they will flower in. For strong, single specimens five inch pots are large enough, but, if weak, two, or even three, may be placed in a six inch pot. A mixture of good loam, leaf mould, and sand makes a good compost, and it should be made fairly firm in the pots, over a moderate drainage. Up to July the plants do best in a light position in the heated house, but after then, to about the end of September, no more protection than a cold pit affords is needed. The growths may be stopped, according to their strength, up to the middle of July, although for late struck cuttings it is not advisable to repeat the operation more than once. During very bright weather a slight shading is desirable. A free circulation of air without draughts, and a fair amount of atmospheric moisture, promote sturdy growth. The flowers of P. rosea are deep rose; P. r. superba is much richer and brighter, and P. coccinea is a slight improvement on the last. *Grower.*

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Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. VII.—To the Sho-lo River.

OUR next journey was over the western range to the Sho-lo river. Indeed, I had hoped to reach the snow peaks of Kang-ka-li, which are so conspicuous from the summit of Mu-li cliff; but, owing to the hostile attitude of the Mantzu tribes who inhabit that country, we were unable to cross the Sho-lo river.

On June 3 we set out, travelling north, parallel to the cliff, but ascending gradually. Soon we were in the Pine woods, where there were not many flowers, though I found here another species of Cypripedium. By the stream a species of Calanthe abounded, for ground Orchids are numerous in this country, though, of course, there are no epiphytic species. Other woodland flowers were a cream-coloured Disporum, several species of Arisaema, and the speckled brown Lily, just coming into bloom.

Before beginning the real ascent of the range, we had to get beyond the spiked cliff, which breaks through it like the scaffolding of the world itself. To do this, we crossed first of all a lofty spur, and then plunged down into a profound ravine, filled with forest trees. On the limestone cliffs grew the Suffruticosa Primula discovered last year (K.W. 4275), but it was already over. Its flowering season is from mid-April to mid-May. I hear that Mr. Rock, an American botanist who is spending the season at Lichiang, has found this plant on the west flank of the Lichiang range.

Most of the Suffruticosa Primulas are found at comparatively low altitudes, not above 10,000 feet, as a rule. The only one I recall from a more lofty height is P. pulvinata, which I found at over 12,000 feet on the Mekong-Salween divide.

After crossing this gorge, the real climb began, and in the afternoon we reached the summit of the range, which here presents the normal rounded appearance of rolling downs, which is in such stark contrast to the prickly cliffs which break through in some places.

These downs were aglow with dwarf Rhododendrons, though the species represented are few.

Descending the west flank of the range, towards the Sho-lo river, we at once entered the forest, where small tree Rhododendrons were conspicuous. R. croceum ("Lemon Bell") was just coming into flower. A shrub with pink flowers, almost over, appeared to be "Silver Rose" (K.W. 4177; maybe R. Roxianae), but was, perhaps, a different, though closely allied, species. Rhododendron "Giant Rose" (K.W. 4211) was over.

Under the trees were patches of the new Nivalis Primula (K.W. 4181), which I understand has been named P. Corianum, in honour of Mr. Reginald Cory; but it was not yet in flower, though in 1921 I found it in flower abundantly on June 5. In a marsh, a single plant of P. conica was already in flower.

In this region, to the east of the Yang-tze, with its dry winters, Muscaroid Primulas abound. Last year I found at least seven species, as against a single species I can recall on the wet ranges above the Mekong and Salween rivers. Professor Balfour remarks that the hairy leaves are a warning that damp in winter will be resented, and the distribution seems to bear this out. For the same reason they are never likely to be very popular at home, because never quite hardy; though their quaint beauty, rich colouring, and exquisite fragrance must appeal to all.

We camped in the forest on June 4, and here I found masses of Paeony, growing in deep shade, with flowers of a fine rose-pink colour. The species is new to me. A few Liliaceae—spp. of Oligobotrya, etc.—also grow in the thin undergrowth. In the dry Oak forest, also, I found another Intricatum Rhododendron with deep violet flowers, differing in foliage from another very similar species. There is no doubt that the Intricatums of this region are very difficult, and far more numerous than a superficial survey would lead one to suspect. Indeed, so far as my experience goes, they are the only really big group of Rhododendrons in this forestless country, the Campylocarpum group being a very poor second. The difficulty is greatly increased by the impossibility of deciding what characters are of specific value, where so many are variable. With half a dozen fluctuating characters, we find permutations and combinations of all six, proving, I think beyond a doubt, that crossing is going on all the time, as, indeed, it could hardly fail to do. But that does not help us in the least.

To cope in some measure with a difficult task, I collected Intricatum Rhododendrons wherever I found them, and when a quiet time came later compared them. In this way I was able to select a number of characteristics, more or less variable, and reduce some twenty-five gatherings to twelve distinct species. But I am quite prepared for the experts to demolish my twelve species, leaving but two or three out of the wreckage; or, on the other hand, to take my twenty-five numbers and expand the dozen species to a score. It all depends, ultimately, of course, on what each person considers a species. The diagnostic marks are clear enough in themselves; it is a question of their permanence and variability.

Of one thing I became convinced in the field—and I examined scores of specimens—the length of style, by itself, is not a specific distinction. There are long-styled and short-styled plants of undoubtedly the same species; in other words, some of the Intricatum Rhododendrons are heterostyled, as in Primula, though the stamens are always of the same length, and in the same position. I have specimens to prove it.

On the other hand, length of style, taken in conjunction with other characteristics, may be a valuable diagnostic mark. There are species with short styles, with medium styles, and with long styles; with and without silver scales on the under surface of the corolla, etc. The subject is too technical for a traveller's description of the country and its flora. It requires an expert to unravel it, and I will leave the field to such an one, with the above indications and suggestions for his guidance—or confusion!

I may add that the Intricatums found on the limestone cliffs at lower altitudes, such as "Limestone Beauty" (K.W. 4341 or 4486), are not included in the above remarks. Of these I found about three species, bringing the total up to fifteen Intricatum Rhododendrons—that is, if all my Intricatums *are* Intricatums and not Lapponicums or something else.

On June 5 we came down through the lower forest belt, where the hairy-leafed Campylocarpum Rhododendron was abundant, though not a flower remained, and so to the arid, treeless gorge of the Sho-lo river. Being unable to cross, we retraced our steps to the summit of the range next day, but, instead of descending direct to Mu-li, went round behind the great cliff, which is cut in half, from north to south. Amongst the dwarf Rhododendrons were two species of Caragana, one very spiny, with cream-coloured flowers, the other with bright gamboge flowers. Meconopsis lancifolia (K.W. 4008) was also in flower on the sheltered, grassy slopes. Here the specimens all have six or seven petals. Just a month later, in another locality, I found what was presumably M. lancifolia, but in this case the petals were invariably four only. Both are limestone plants, though the Mu-li variety grows on other rocks as well.

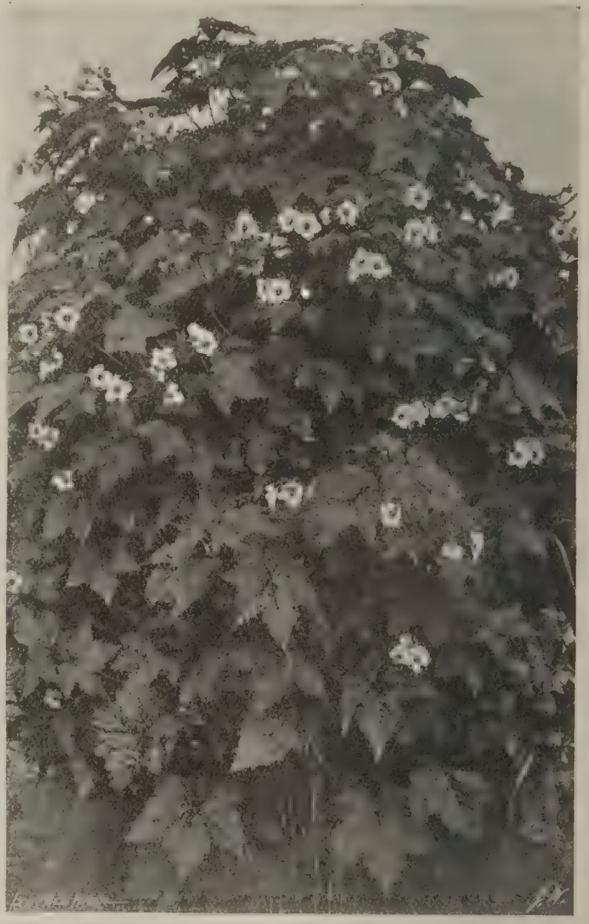

FIG. 24.—RUBUS ROBUSTUS (R. ODORATUS × R. NUTKANUS).

In the woods on the side of the cliff I at last found in flower a Rhododendron I had long been seeking—the hairy-leafed Campylocarpum. I had found foliage of it in 1921, but failed to secure any seed, though I collected a little of last year's seed this year. Here it was in flower at last, though nearly over; rather small purple flowers, with a darker patch inside. Nothing very wonderful, and, anyway, it is quite common.

We got back to Mu-li on June 11, to find the woods full of flowering shrubs—pale pink Lilac, snowy masses of Deutzia, Philadelphus, Roses, Honeysuckle, etc. On the rocks, Daphne calciola in orange clouds, Primula pulchella, and splashes of pink Androsace spinulifera were noticed. *F. Kingdon Ward.*

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* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15, July 22, August 5, August 26, September 9, September 23, October 7, October 21, November 4, November 18, December 2, December 16, December 30, 1922, and January 13, 1923.

TITHYMALS.

THE Euphorbiaceae is of interest to a larger section of the community than to gardeners merely. There is the Box, Teak, Cassava, Cascarilla, Castor-oil plant, Croton, and, besides others, the Manchineel (Hippomane Mancinella), the subject of many legends.

The plants of this order that are of most interest to gardeners are mostly inhabitants of the stove—Codiaeum, Acalypha, Poinsettia and Euphorbia. E. splendens, which is remembered as a source of dread, used to be pushed into a corner of the stove, as far out of the way as possible, for fear of its poisonous spines. E. fulgens never fails to excite admiration, and is one of the least difficult to grow. It is easy to propagate from seeds, cuttings of the ripened shoots, or, as I liked best, the young green shoots, which rooted satisfactorily in a sand propagating bed. At one time I grew it as large plants for room decoration. These were cut back, and when in flower had attained a height of six feet, carrying several long, curving sprays. These were also useful for vase-furnishing and for table decoration. There are, too, a few hardy species, of which E. polychroma is probably the best for the rockery, and E. Cyparissias is by no means to be despised, for not only is it pretty when in flower, but right up till autumn the changing colours of its foliage attract attention. The gentlewomen gardeners of the seventeenth century knew it by the name of "Welcome to Our House," while in the South of Scotland it is still designated "Garden Little Gude," to distinguish it from E. helioscopia, which, along with other names, has that of Little Gude. The sap of this weed has been esteemed for so long as a specific for removing warts that it seems strange it should bear a name of such opprobrious meaning, for that, too, is an appellative bestowed on the Enemy of Mankind; but the other name of Deil's Milk leaves us no means of escaping from the conclusion that it must be so.

Another species that seldom fails to appear annually here is E. Lathyrus, which, along with E. Pithyusa and the above-named, were for centuries held in great esteem by the physicians of long ago, and later by the empirics, their successors. It is true that we do not find them under the names they are known by in our times, yet the old and superseded Solsequium is not different from helioscopia, which Lyte Englished in "Sunturner." E. Pithyura, again, is always noted by the name of Esula, assumed to be an extended form of the termination of Pithyusa. It was an extract from the root—or, rather, the bark of the root—of this plant that was used, and not the sap. Still, *The Garden of Health* informs its consultants that it could be used similarly to other Tithymals—a very old general name for the genus. It was the seeds of E. Lathyrus that were valued, and it was called Cataputia, a name which Chaucer Englished in Catapuce, when he tells us how Dame Pertelot advised her husband to partake of its seeds to overcome his melancholy. Later it was known as Spurge, from the old French *espourge*, a curious illustration of how a foreign name has been substituted for the English Purge.

In this connection Gerard, in his usual distinctive manner, relates an experience he had with E. Paralias which illustrates this point, and remains a warning to others against partaking thoughtlessly of even a small quantity of the sap. He states: "I took but one drop of it into my mouth, which nevertheless did so inflame and swell in my throte that I hardly escaped with my life." He finally got relief on riding in haste to a farm-house, where he drank milk. It may be noted as an interesting fact that Lyte makes mention of E. Characias being "founde in the gardens of diligent Herboristes," along with E. Cyparissias and E. Peplus.

In old books on bees objection is made to plants of Box being allowed to grow near hives, on account of the fatal effects that follow where these busy insects visit the flowers, and, indeed, it would appear that few of the genera are free from deleterious effects. *R. P. Brotherston.*

NOTES FROM AMERICA.

ANOTHER OLD GARDEN CALENDAR.

A SHORT time after the Rev. Joseph Jacob's articles on "Garden Calendars" appeared in *Gard. Chron.*, a confrère of mine observed an old, brown, leather-bound book, some seven inches by four inches, marked at twenty-five cents, in a store. Examination showed it to be of considerable age, and because of its embracing title, he bought it. Its title is *The Instructor, or Young Man's Best Companion*, by George Fisher, Accountant. The imprint shows it to be the twenty-fifth edition. It was printed in London for J. Rivington and Sons, J. Buckland, T. Longman, B. Law and several others, the date being given as MDCCLXXXIX, price 2s. 6d. The year 1778 is mostly used in the examples of letter writing, however. On the title page is a lengthy list of the subjects dealt with by the author, irrespective of the complete index. The total number of pages is 384, and on the back fly-leaf is written partly in ink and partly in pencil, "Sally Dorr's Book, 1793. Presented by H. D."

"The Compleat Gardener," or "The Practice of Gardening in all its Branches for the Twelve Months in the Year," commences on page 344 and ends on page 359. Under each month, the Pleasure Garden, Kitchen Garden, Orchard and Fruit Garden come under survey. In February we are told to sow the kernels of Apples and Pears and the stones of Plums for stocks, and to protect trees from birds that eat the buds. I was specially interested to observe that the third week in March is the time advised to sow Sweet Peas, Poppies, Catchflies and all the hardy annuals. Our author, too, knew all about foreright shoots on espalier fruits. Under June, among other things, we are told to "cut the cups or pods of the Canations (Carnations?) that are near blowing, in three or four places that they may blow regularly; also to inoculate some of the fine kinds of Roses." The term inoculation, as applied to Roses and fruit, apparently relates to budding or grafting. In August we are told to sow Anemones, Ranunculuses, also Fritillary, Tulip and Narcissus seed.

In October he advises that Cauliflowers as they show their heads should have their leaves broken upon them to keep off sun and rain to harden and whiten them." If Mr. Jacob can possibly secure a copy of *The Instructor*, he assuredly will enjoy perusing it. *T. A. W., New Jersey.*

PLANTS NEW OR NOTEWORTHY.

RUBUS ROBUSTUS.

IN the summer of 1918 I crossed R. nutkanus with pollen of R. odoratus. The pollen of R. odoratus came by mail, loose in an envelope, something like two thousand five hundred miles, and owing to the proterandrous nature of the Rubus flowers could not be effectively applied until three weeks after the time it had been collected. But it proved potent, and I send you a photograph (Fig. 24) of an 8 foot high seedling from the cross, in which the influence of the pollen parent may be seen in the acuminately lobed leaves. The hybrid takes its height from the seed parent, but is more compact and robust, and I think this is because it does not waste its energy in sending up the quantity of suckers so characteristic of R. nutkanus. The flowers are a very pleasant rose colour at opening, and fade to pale purple; they are fragrant, but not more so than those of R. nutkanus. All four seedlings which have been grown on, seed to a certain extent, one of them as freely as its parents could do. Professor C. S. Sargent, of the Arnold Arboretum, tells me that the name of this hybrid is Rubus robustus, and that he obtained a plant of it from Petersburg which grew with them for several years, but finally died. *George Fraser, Ucluelet, B.C., Canada.*

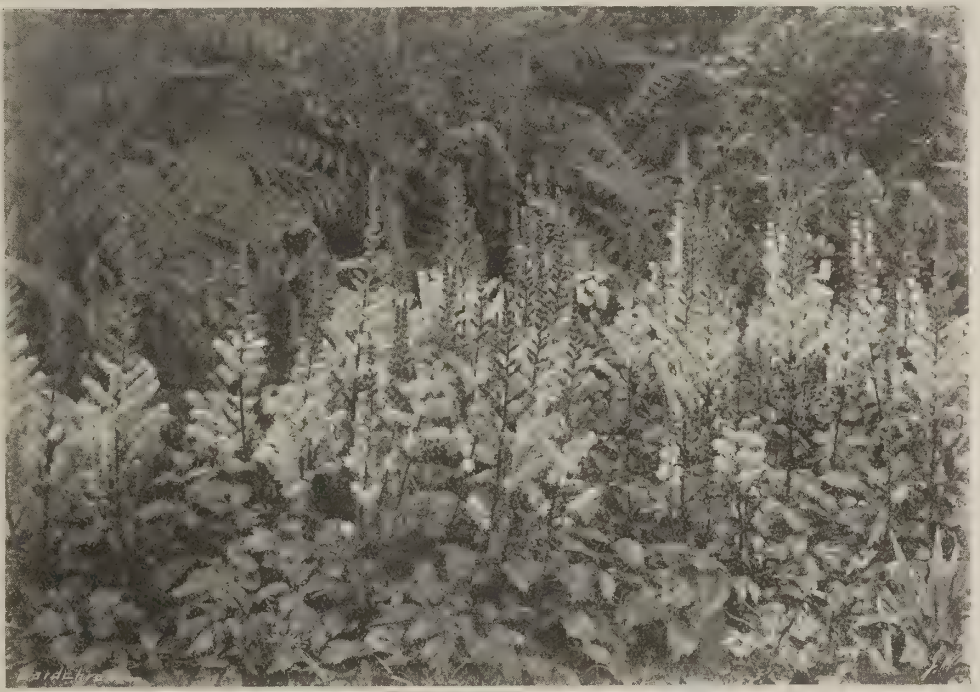

FIG. 25.—ASTILBE CHINENSIS VAR. PUMILA.

ASTILBE CHINENSIS PUMILA.

AMONGST other new plants exhibited in the course of the year 1922 at the French National Horticultural Society, in Paris, most noticeable has been the new Astilbe chinensis pumila (Fig. 25). The plant was stated by the introducers (Vilmorin-Andrieux and Co.) to be a native of Thibet, where a missionary, Father Monbeig, noticed it in 1911 and sent seeds to France. In its appearance and stature it is very distinct from any Astilbe that has been introduced hitherto.

The stems are stout and erect, 1½ feet high, and carry numberless small, rosy lilac flowers, these succeeding each other for an extraordinarily long period in the months of August and September. Doubtless this rich, autumnal flowering habit, joined to the attractive appearance of the plant, will make it ere long a great favourite. In cultivation it requires similar treatment to most Astilbes and Spiraeas. A. chinensis pumila has received an Award of Merit from the French Horticultural Society. *A. M., Paris.*

HARDY PLANTS FOR SUB-TROPICAL EFFECT.

A FEW decades ago many kinds of plants were used for sub-tropical effect that had to be housed for protection in winter and reserved, to be employed for the following season, this entailing not a little trouble and anxiety to the cultivator. They included Palms of various kinds, Dracaenas, Caladium esculentum, and Musa ensete, all charming and exquisite subjects when grouped and associated with others of a like character, but which, no matter how arranged, produce a most monotonous effect, whilst being natives of tropical climates they are only effective in the most favoured and sheltered localities, where their leaves escape being disfigured and torn by high winds.

The general appearance of the landscape strikes the casual observer more pleasantly when isolated specimens or masses of graceful foliage and flowering plants are arranged to form an outline to the lawn or shrubbery border, in clumps singly, or from 3 to 6 in a group. This method of planting depends, of course, largely on the taste of the designer and size of the garden. In any case, it is perfectly obvious that the best effect is made when the outside lines are in single clumps, or in threes, and the taller subjects planted at the back, allowing sufficient space between the clumps to enable visitors to walk around them, thus avoiding geometrical lines so far as possible.

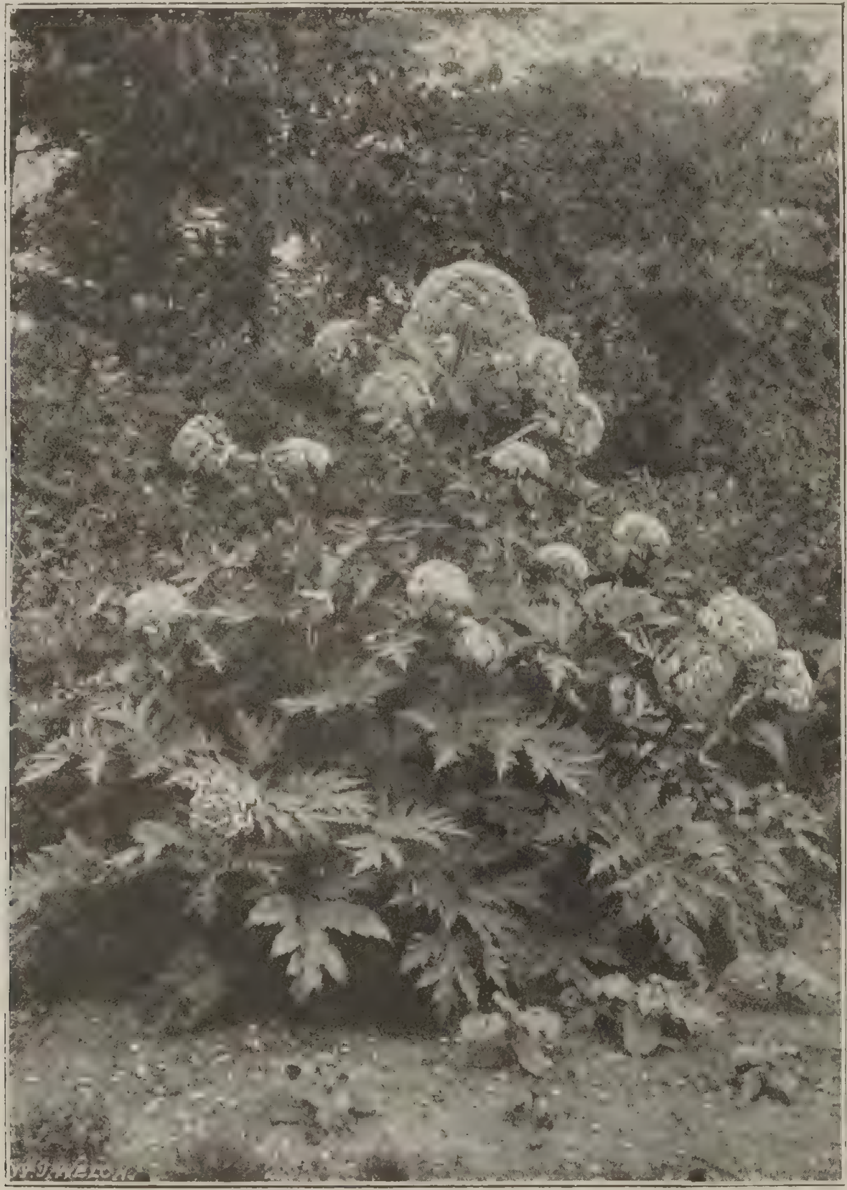

FIG. 26.—HERACLEUM GIGANTEUM.

A large number of hardy plants are suitable for producing a sub-tropical effect, and some of the best are Acanthus latifolius, a tall, stately-growing plant, producing massive, deeply-cut leaves, and tall spikes of flowers in abundance. The plant is easy of cultivation and most effective on the edge of the lawn. The flowers are purple and white.

Acanthus spinosus, A. mollis, and A. candelabrum are all admirably adapted for planting on the lawn, forming effective specimens.

Yucca filamentosa is a well-known plant. It has broad, evergreen foliage, margined with long, white filaments, and branched spikes 4 feet to 5 feet tall, of large fragrant drooping, creamy-white flowers from July to August. Y. gloriosa, Y. Ella combeii, Y. recurva, and Y. angustifolia are also all worthy of consideration for the special purpose under consideration. Eryngium pandanifolium is a stately evergreen plant with glaucous foliage armed with spines. The flower stems attain a height of 5 feet to 8 feet, and bear branched heads of flower. It is a noble plant for isolated positions on the lawns, but requires a sheltered situation. E. yuccaefolium, E. agavifolium, and E. bromeliaefolium are all equally ornamental, and deserve prominent positions. Rheum palmatum atrosanguineum is another noble and ornamental hardy perennial foliage plant. It is one of the finest of the genus, and bears flower spikes 6 feet to 8 feet tall. The large, handsome foliage, of a reddish-purple, renders it a most striking and effective plant for isolated positons or where luxurious growth is desired; R. tanguticum, R. Emodii, and R. officinale are all good for their stately appearance Bocconia cordata, the Plume Poppy, is an extremely handsome plant, with metallic-grey foliage, and is admirably adapted for isolated positions. It is perfectly hardy, and grows from 5 feet to 6 feet tall, bearing terminal plume-like panicles of creamy-buff flowers. This plant is sometimes known as B. japonica; B. microcarpa is also an effective species.

One of the most beautiful combinations in planting is to intersperse Tritoma Uvaria grandiflora with Gynerium argenteum—the former flowers with the Pampas Grass, and-when standing at a distance appears as flaming fire rising from amidst their plumes. Phormium tenax, the New Zealand Flax, is undoubtedly one of the most noble of plants. It has handsome, glaucous, sword-like, leathery foliage, and grows 5 feet to 7 feet high, the leaves arching gracefully. The tall spikes of orange or buff-coloured flowers resemble those of the Canna; in cold districts it is advisable to afford this plant slight protection during severe winters.

Other desirable plants suitable for this purpose are: Heracleum giganteum (see Fig. 52), Ferula communis, F. Linkii, Polygonum Cookii, Crambe cordifolia, and Cynara Scolymus, the Globe Artichoke. These, however, grow most vigorously, and are best planted in glades, dells, and semi-wild places.

Gunnera manicata has leaves of gigantic proportions and is unequalled for creating a sub-tropical effect in moist positions on the lawn, the bend of carriage drives, woodland walks, by the waterside, or, indeed, anywhere so long as plenty of moisture is available for the roots during the growing season. It needs protection during severe winters. G. chilensis (syn. scabra) is equally effective. Sub-tropical gardens would be lacking in grace if Bamboos and Grasses were not introduced. The following are a few Bamboos that may be incorporated: Bambusa Metake, Arundinaria Simonii, Phyllostachys viridi-glaucescens, and P. nigra; whilst of Grasses Elymus glauca, Arundo Donax, Miscanthus (syn. Eulalia) japonica fol. var., and M. j. zebrina have all a stately appearance. *W. Logan.*

HARDY FLOWER BORDER.

VERBASCUM MISS WILLMOTT.

I HAD the pleasure of seeing this Mullein for the first time at one of the Chelsea Shows where it attracted much attention from those who are fond of hardy flowers. Those desirous of obtaining a good Verbascum with white flowers to associate with other plants in their borders or wild gardens would do well to obtain it, and it may be confidently recommended for the border or wild garden. It grows 5 feet or 6 feet high, producing large white flowers on good spikes. It has been such a satisfactory perennial that it has received high encomiums from those best qualified to judge the qualities of hardy perennials. It is splendid in the border, and a mass in a wild garden presents a most inspiring sight. *S. Arnott.*

STEVIA PANICULATA.

THIS delightful Gypsophila-like plant, sometimes known as Stevia serrata, has been cultivated in France for a great number of years, whilst in the U.S.A. it has been an important florists' flower for more years than I can remember. Yet until recent years not a single commercial grower in this country had attempted to cultivate it; a Swiss friend has, however, grown it for many years for his cut flower trade. At the present time there are a few growers handling it, but so far as I am aware none of their flowers ever reach Covent Garden Market

Some day, perhaps, growers and gardeners generally will wake up to the value of Stevia paniculata to follow Gypsophila paniculata. Seed is easily obtainable, and by sowing early the plants may be flowered in the open before frost occurs, or they may be lifted and planted to flower in early winter like Chrysanthemums

The roots are perennial, and if stored like Dahlias may be restarted the following season to flower very early. *T. A.*

THLADIANTHA DUBIA.

Mr. R. Irwin Lynch raises an interesting uestion in your issue of the 23rd December, 922, p. 371, as to the tubers, and the mode of reproduction, of Thladiantha dubia. The fact that the underground stolons are incapable of reproducing the plant seems at first urprising to anyone who has not previously studied the question; and when one considers he luxuriance of the plant, and its tendency apidly to cover the ground where it grows, it eems all the more inexplicable.

It would be interesting to carry out experiments in other places, and, if possible, in other limates, so as to see whether the plant would display the same characteristics under different conditions. It would be still further of value to include in such experiments any other species of Chinese origin, less well known, and differing from T. dubia in its underground root system.

Whereas in T. dubia the tubers are round, mall and numerous, and remain near the surface of the soil; in T. Oliveri, on the contrary, they are elongated, large, deeply buried n the ground and inclined to be sparse. This does not prevent the plant being at least qually invasive with its congeners, and it hrows out numerous stolons which extend far beyond the plant. When these stolons have been collected from the previous year and used for purposes of propagation, they have been found entirely barren of result, which eems in accordance with Mr. Irwin Lynch's xperience. I fear, however, that this ffort to propagate the plant was not surounded by all the guarantees which could be desired, and new experiments are essential. One fact especially stands out—that in spite of the scarcity of tubers which is one of the haracteristics of the species, in the spring a uantity of new shoots appear, spread over a wide surface, sometimes at quite a distance rom the tubers.

It is a remarkable fact, and has doubtless been previously observed, that whereas the herbarium specimens collected in China appear all to have been taken from female plants, he plants introduced, grown from seeds sent by the Abbé Farges, in 1894, to M. Maurice de Vilmorin, were all of the male sex. They are, by the way, more decorative than the emale plants.

In the course of a genetic experiment at Verrières, in 1906, it was sought to produce female T. Oliveri, by pollinating a female flower of T. dubia with pollen taken from T. Oliveri (male). The result, in the hybrids of he first generation, as regards the tubers, was most curious, as may be seen from the illustraon (Fig. 27). The tubers of the hybrids were almost exactly of the same shape and size as those of T. Oliveri, but the general external haracteristics were those of T. dubia.

One of the female plants obtained from this cross was impregnated with pollen from T. Oliveri, and the same process was repeated for five consecutive generations, with the result hat now, in the sixth generation, the characteristics of the seed parent, T. dubia, have been completely eliminated, and the present hybrids, male and female, are identical, at all events outwardly, with T. Oliveri, male, he only one to be introduced.

Although T. dubia is a very decorative plant and capable, for that reason, of being widely used, T. Oliveri is undoubtedly superior and hould be preferred. The foliage is much more abundant and finer, and the flowers, of a beautiful golden yellow, are much larger and more numerous, thirty to thirty-five being massed together to form large auxiliary bouquets. The flowering period extends from July to September, and is followed, if artificial pollination has been resorted to, by fruits of he size and shape of a hen's egg.

A descriptive note on Thladiantha Oliveri appeared in the *Revue Horticole*, 1903, p. 472. M. Gagnepain published, in the *Bulletin du Muséum d'Histoire Naturelle* a revision of the Asiatic Thladianthas in the Paris herbarium, and described ten species, most of which do not appear to have as yet been introduced into cultivation. *A. M., Paris.*

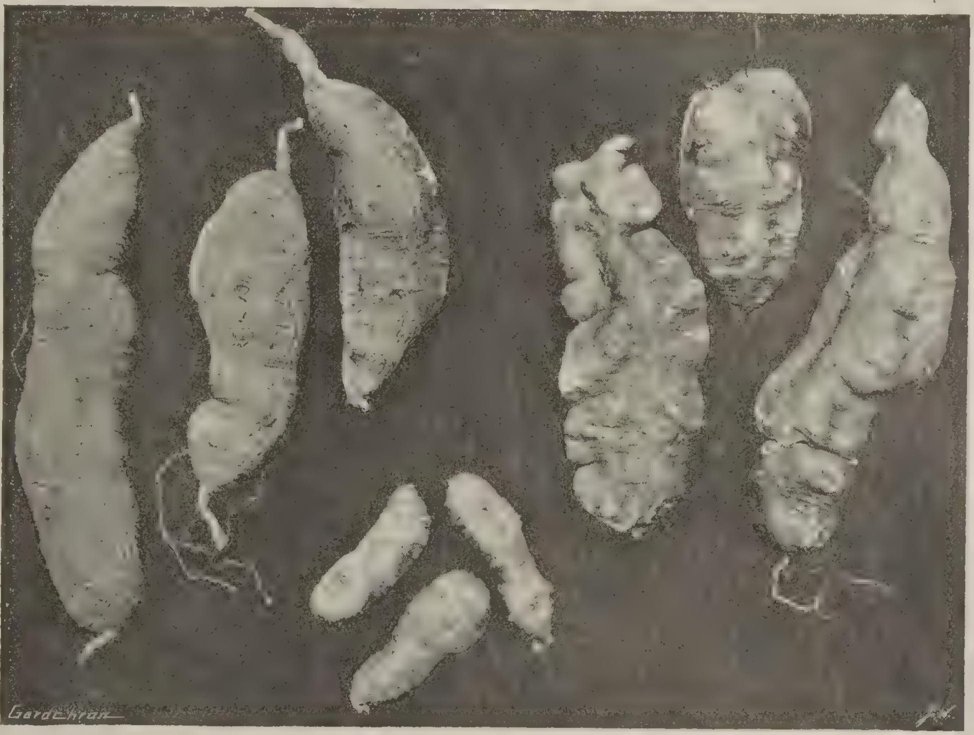

Fig. 27.—Tubers of Thladiantha. Left—T. Oliveri; centre (small)—T. dubia; right—T. dubia × T. Oliveri (F_1).

INFLUENCE OF STOCK ON SCION.

It may be of interest to fruit-growers to record some observations of mine on the behaviour of certain fruit trees that have been re-grafted. It is well known that inarching and double grafting fruit trees have a great tendency to alter considerably both the colour and flavour of any particular variety of fruit; indeed, in some cases the effect is so great as to make the variety unrecognisable. In a garden near Derby I saw a vine of Madresfield Court, which always produced dull-coloured berries, but after it was inarched on a Black Hamburg vine the berries were as black as Sloes, with no tendency to crack or split, as is common in the Madresfield Court variety. In an old orchard I saw a tree that had been cut down and re-grafted with Blenheim Pippin. I was informed that the stock was Kingston Black, which probably resulted in the fruit of the Blenheim Pippin being as highly coloured as Gascoyne's Seedling at its best. Fruits from this particular tree, of a dessert size, were shown in a single dish class for Apples at the Hereford show some years ago, and were disqualified as not being true to variety. Evidently the intense colour had deceived the judges, as it would most other people.

A series of double grafting experiments, extending over a number of years, has interested me and may prove of interest to other fruit-growers. The trees were bush specimens of Blenheim Pippin, growing in a garden at Newton. They were worked on the Paradise stock, but owing to the exceptional fertility of the soil they made such gross growth that they failed to fruit. The owner of the trees was advised to head them down and re-graft them with Newton Wonder, but he grafted instead Cox's Orange Pippin, and in the course of four years the trees commenced to bear. To everyone's surprise who saw them, the fruits, which were of first-rate flavour, were of the size of medium specimens of Blenheim Pippin, whilst they kept longer than ordinary Cox's Orange Pippin. Mr. T. Spencer, the esteemed steward and gardener at Goodrich Court, grafted some years ago a very good coloured dessert Apple found by myself in an old orchard near Ross. Grafts were placed on a bush of Potts's Seedling, and he also grafted some on the Paradise stock. The trees worked on Potts's Seedling produced fruits as green and flavourless as could be, whilst those on the Paradise stock were of good colour, shape and flavour.

Three trees of the old variety of Plum named Dymock Red were headed down and re-grafted with Jefferson's Gage, with the consequence that the trees fruited bountifully every year until they were attacked by silver leaf disease.

In an orchard near Oakham two large Plum trees were headed down and cleft grafted with scions of the variety Victoria. The scions grew vigorously, and in five years commenced to bear fair crops, but instead of the fruits being of the usual pinkish red colour of Victoria, they were a deep purplish colour, covered with deep bloom and inclined a little to the shape of Early Prolific, whilst the flesh was quite firm. Near Little Malvern, two trees of Worcester Pearmain Apple on the Paradise stock were headed down for experimental purposes and re-grafted with Allington Pippin. The fruits of Allington Pippin developed a beautiful rosy cheek, much to the surprise of everyone who saw them. Another example that may be instanced was some trees in an orchard of Sturmer Pippin Apples that were headed down and re-grafted with Worcester Pearmain. The fruits of Worcester Pearmain from these grafts kept much longer than usual for that variety; indeed, they remained sound until Christmas. In addition, the variety lost some of its high colour, whilst the flesh was somewhat firmer and more agreeable to the palate, the rather insipid flavour of the Worcester Pearmain being suppressed.

The late Mr. Lewis, of Leominster, raised seedlings from pips of Calville Blanche Apple and grafted the strongest seedlings with several sorts of dessert and culinary Apples. The results were very interesting, but at his death the trees were dispersed. A grower of pot fruit trees always obtained extra large fruits from one tree, and from this tree only, although he had under his charge six other trees of the same variety. No matter what skill he exercised, these trees never bore specimens comparable in size with those from their companion. The problem was solved by discovering that that particular tree was grafted on the free stock, whilst the others were on the Paradise stock.

Some sixty years ago an old Crab tree in a hedgerow was grafted with a Crab variety and re-grafted with the old White Harvest Apple. To everyone's surprise the fruits from this tree kept sound until November. Four years ago I budded the Red Victoria Apple on a small branch of Lord Suffield. This branch fruited last season, carrying three fine fruits, but they were somewhat deficient in colour. Near Tenbury a few standard Pears of Pitmaston Duchess variety were headed down and grafted with Doyenné du Comice and Beurré Hardy. The trees grew strongly and produced good crops. Those of Beurré Hardy grew to a large size, but the skin was less russety than in the ordinary type. The Doyenné du Comice fruits were also of large size, but deficient in flavour, and also did not keep so long as usual. It has often occurred to me that the double grafting of Apples, and especially of cordon trees, would be useful in assisting the keeping qualities of several of our first-rate Apples. For instance, Sturmer Pippin or any other very late variety might be worked on the Paradise stock, and this in turn budded with Cox's Orange Pippin. I believe the result would be to greatly prolong the season of the Cox's Orange Pippin variety.—*Pomona.*

DEGENERATION OF THE POTATO.

In the interesting paper upon the "Degeneration of the Potato" by Mons. Mottet (see pp. 25 and 38) reference is made to the opinion I expressed some years ago that one of the causes of degeneration was undoubtedly the direction in which the improvement of the Potato was being pursued. That was the selection of varieties which possessed shallow eyes and smooth skins, and, in addition to these characteristics, a tuber that was of a certain shape—otherwise than round—which it was presumed rendered the variety more acceptable from a commercial standpoint. Those who deal in Potatos in the markets have an accepted and general standard of the ideal tuber from a culinary aspect. This is a tuber of what I call a full kidney shape; the skin almost perfectly smooth; the eyes to be practically unobservable. The idea is that tubers possessed of deep eyes are wasteful when they are pared prior to cooking, and the tendency of selection has been towards the ideal tuber of those who sell for consumption.

There are more vital questions to consider, however, than the ideal tuber of the consumer. The Potato has to be increased asexually. The main point of the selection of new varieties—when dealing with a batch of seedlings—is not, therefore, primarily the utility of the tuber from a supposedly utilitarian culinary essential, but rather from a reproductive question. If tubers are selected without any consideration of the reproductive aspect, then disaster, sooner or later, must be the result. The eye is the leaf-bud of the Potato.

Mons. Mottet is almost inclined to agree with me that a round tuber of somewhat rugged personality, and with deep eyes, is likely to have the longest life. The Potato is reproduced from tubers, and if any variety is to have a long lease of life I am convinced that selection must follow very definite lines. The shallow eye and finer skin are sure to result in early degeneration. Constant raising from seed—sexual reproduction—will, no doubt, keep a strain of a certain amount of vigour in being, but the recent remarks of Dr. Salamon upon this point are not an encouragement to breeders. There are more vital questions than those of synonymy.

I repeat one paragraph from the paper by Mons. Mottet :—"Whatever may be the final decision on these very delicate questions, those who have devoted their whole lives to the subject of cultivated plants, and who have attentively observed their evolution, cannot but admit that improved varieties, propagated solely by asexual metods, deteriorate more or less rapidly, and cease at last to be remuneratively cultivable. It is simply a question of time, and of individual robustness, that is all."

I entirely agree with that. If the public demand is for a tuber of a certain character and one which is undoubtedly opposed to vigorous reproduction, there can be nothing but degeneration. Asexual selection upon such lines is an impossibility. And I also agree that we do not now possess such vigorous varieties of Potatos as those of our forefathers. *George M. Taylor, Edinburgh.*

VEGETABLE GARDEN.

THE YAM.

The Yam, although a tropical subject, is fairly hardy, and what makes it more valuable, it is a perennial. Yams are cooked and used as are Potatos; but they are much more milky, and when cooked of a distinct Chestnut flavour.

It is usual to bake them first, and afterwards boil them like Potatos, in their jackets; when minced and mixed with milk or gravy they are delicious.

The Yam will grow well in any class of soil, but requires an open sunny position. The best time to plant is in March, using small tubers and planting them 3 inches deep and 1 foot apart; as soon as the shoots appear, fix stakes or branches for the growth to climb on. According to soil and season the growths will extend from 6 feet to 12 feet in height. The tubers should be lifted and stored in a frost-proof place in October. The Yam may also be propagated by stem cuttings 1 inch long with a leaf attached, inserted a quarter of an inch deep in sandy soil under a bell-glass in a temperature of 55° in summer. Plants from these cuttings should be wintered in a greenhouse and planted out when all danger of frost is over; this is by far the most reliable way of obtaining plants *W. Miller, Mill House, Horse and Groom Lane, Warley.*

CUCUMBERS.

Plants that were raised in September for furnishing supplies during the winter should now be showing plenty of young fruits. It is not advisable at this season of the year to allow the plants to crop very freely, therefore the fruits should be thinned in their early stages. Frequent top-dressings of loam and leaf-mould will help to keep the roots in a condition suitable for active growth of the plants. The walls and floor of the house should be damped frequently to promote a moist atmosphere, whenever the weather is suitable for sprinkling moisture in the house.

Plants intended to follow this batch should be raised from seeds sown now. Place the seeds singly in small pots and germinate them over a mild hotbed in a warm forcing house. Cover the pots with a sheet of glass until germination takes place. The soil may consist of fine loam and leaf-mould in equal parts, with a little sand added. A temperature of 700° at night, rising with sun heat to 80° by day, will suffice. To obviate heating the hot-water pipes to excess protect the roof-glass at night with some suitable covering when frost is expected. *P.*

ONIONS.

As soon as the ground is dry enough, the Onion bed should be made, as the sooner the seeds are sown now the better. I have had the best results when able to sow in January, but on no account should the seed be set before the ground is sufficiently dry, and this can be assisted by a liberal dressing of lime thrown on with a shovel, also soot, and as much wood ash as can be procured.

The surface should then be forked over lightly or worked well with a Planet Junr. scuffle. Afterwards lever the bed with a wooden rake, as the use of this implement enables the work to be done quickly. All the rough stones and rubbish should be removed, and uneven spots levelled by means of the spade. The bed should then be trodden over to make it firm, and again raked perfectly level. When the surface soil has been worked to a fine tilth a light roller should be run over it, as this facilitates drawing the drills, which should be made 1 foot apart and very shallowly. Sow the seeds evenly and sufficiently thick to ensure a good crop. Cover them by drawing the earth up with the feet each side of the drill. *H.*

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Campanula Telham Beauty (see p. 21).—I wish to thank your correspondent *T.* for his remarks about Campanula Telham Beauty. I read Mr. W. Logan's interesting article and noted Telham Beauty was missing from his list, but anticipated some reader would call attention to the omission. Telham Beauty is superb as a pot plant; I have had the same plants in bloom from early in June until late in August. They last well as decorative specimens in light, airy dwelling-rooms by picking off the seed pods as they appear. The plant needs to be grown under perfectly hardy conditions and requires only glass protection when the blooms commence to expand. Propagation by offshoots or division is the best means of keeping stock true. From one dozen plants, stock may be propagated in one season sufficient for the needs of most private establishments, for it is marvellous that the vast numbers now in cultivation originated from one plant I raised at Telham Court in 1913. I raise a few seedlings each year for experimental purposes; the number that comes true is about 75 per cent. *F. L. Thurston, Horsley Hall Gardens, Cresford.*

Caustic Fruit Wash (*see p.* 27).—If your correspondent *E. F. C.* will try Gishurst compound in order to cleanse trees from Mussel Scale, I think he will find it to be very effective. Some time ago I experimented on a badly infested tree with satisfactory results. *J. S., North Cumberland.*

In regard to *E. F. C.'s* letter on p. 27 about the inefficiency of caustic soda wash against Mussel Scale, it might be of interest to the writer that Apple trees severely attacked with this pest have been completely cleared by using a lime-sulphur wash, 1-20, applied as a delayed dormant spray. Caustic soda by itself is of no use against this pest, but added to paraffin emulsion has proved to be another efficient remedy. *G. F. W., Wisley.*

Earliest Hybrids of Gladiolus primulinus.—We were not aware that the hybrids of Messrs. Lemoine and Son, which are well known to us, were produced so early as 1908 (see p. 10), and we offer Messrs. Lemoine our apologies. However, our statement dealt with hybrids between Gladiolus primulinus and large-flowering Gladioli in view of an article in *The Times* saying that England lagged behind Holland and America in regard to these, whereas the reverse is the case. France was not mentioned in *The Times* article. *Vive l'entente cordiale*! Whilst taking off our hat, therefore, to Messrs. Lemoine and congratulating them upon having been the first to use Gladiolus primulinus in crossing, we are still proud of having been the first to produce the new large-flowering race which has been so much admired during the last few years. *Kelway and Son, Langport.*

Big Bud in Black Currants (**p. 29**).—It has been said that "there is nothing new under the sun," and there may be a substantial modicum of truth in it. Most certainly the use of ordinary cart-grease in attacks of the Big Bud Mite of Black Currants cannot lay just claim to newness, since it was tried and abandoned before the present century saw its dawn. It may now be tried again, and I most strongly recommend growers who do so to "hasten slowly" in their experiments. It is suggested on page 29 that application shall be done in the spring, "just when a little of the edges of the green leaves can be seen at the points of the buds," and it notes further that the "remedy is apparently only effective in the case of young trees. . . ." To my mind these very points are their own condemnation. When excellent greases are used there is always an element of danger, even on old bark, that injury will result, and in my experience harm is always done when the dressing is on young, tender bark. And yet we are advised in this so-called "new cure" to proceed when the bark must necessarily be in a peculiarly tender state, and the advice is emphasised by the statement that the cure is serviceable only on young plants. The matter may be carried a step or two forward. Many of the grease compounds contain tar and other highly deleterious substances, and when either or all of these are present the probability of injury following application becomes a certainty, as has been proved even in the case of the rough bark of Apple trees when dressing has been done to arrest or suppress the upward march of the female Winter Moths from September onwards. There is no known cure for Big Bud, unfortunately, though reduction in the virulence of attack has frequently resulted from spraying with a lime-sulphur solution, from spraying with a paraffin-soft soap wash, and also from heavy dredgings, while the whole plant is damp, of lime and flowers of sulphur, in each instance at the period named in connection with the "new cure." *W. Tiplow.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, January 4.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, A. T. Cussons, J. Cypher, A. G. Ellwood, J. Evans, W. Giles, J. Howes, A. Keeling, D. McLeod, E. W. Thompson, J. Whitham, and H. Arthur (Secretary).

First-Class Certificates.

Calanthe Angela Beckton's var. (*Chapmanii* × *burfordense*), a flower of excellent shape and very highly coloured; *Cypripedium Emerald Becton's var.* (*Maudiae* × *Curtisii Sanderae*), from B. J. Beckton, Esq.

Cypripedium Mrs. Rickard var. Mercia (*Earl of Tankerville* × *fulshawense*). The flower has a large richly spotted dorsal sepal. From S. Gratrix, Esq.

Odontioda Colinge var. Admiral (*Odta. Corontion* × *Odm. The Baroness*). A well-formed flower, richly blotched and spotted. From A. Hanmer, Esq.

Odontonia Merope Bolholt var. (*M. Bleuana* × *Odm. illustrissimum*). A pure white flower with purple blotches on the petals and base of the lip. From Capt. W. Horridge.

Laelio-Cattleya Dodona var. Ashiae (*L.-C. Haroldiana* × *C. Nellthorpe Beauclerk*). A rich orange and bronze coloured flower with a very dark lip. From P. Smith, Esq.

Awards of Merit.

Cypripedium Christopher bisepalum; *C. Nydia rubella*; *C. Julettie*; *C. Golden Sunset* (*Leeanum Gratrixiae* × *Golden Glory*). From S. Gratrix, Esq.

Cypripedium Nellie Pitt (*Pyramus Black Prince* × *Idina*); *C. Pixie var. rubra* (*Alcibiades* × *Alabaster*. From Mrs. Gratrix.

Calanthe Bryan alba Beckton's var.; *Cypripedium Trentino* (*swintonense* × *Leeanum Clinkaberryanum*). From B. J. Beckton, Esq.

Odontonia Eurydice Bolholt var. (*M. Bleuana* × *Odm. Ashworthii*). From Capt. W. Horridge.

Cypripedium Cynosure (*Leeanum Clinkaberryanum* × *Minos Youngii*); *Saccolabium bellinum Haddon House var.* From P. Smith, Esq.

Cypripedium Olympus var. Diadem (*Leeanum* × *Alcibiades*). From Dr. Craven Moore.

Cypripedium Mrs. Giles (*Lady Dillon* × *aureum Hyeanum*). From A. Hanmer, Esq.

Groups.

S. Gratrix, Esq., West Point (gr. Mr. J. Howes), was awarded a Gold Medal for a group of great variety.

B. J. Beckton, Esq., Irlams-o'-the-Height (gr. Mr. W. A. Stewart), staged a group for which a Gold Medal was awarded, Calanthes being an especial feature.

A. Hanmer, Esq., Buxton (gr. Mr. G. Giles). was awarded a Silver Medal for a group of Orchids.

Messrs. J. Cypher and Sons, Cheltenham, staged a group for which a Silver Medal was awarded.

Erratum.—The parentage of Cypripedium Swallow, which received an Award of Merit on December 21, 1922, when exhibited by Capt. Horridge, is Swallowtail × Satyr, and not Arthurianum × Satyr, as recorded in the official report on p. 27.

CARDIFF GARDENERS'.

A meeting of the members of this Association was held on the 16th inst. A representative of tho Bristol Association, Mr. D. Inglis, gave a paper on "Different Soils—Different Plants." His remarks dealt with a geological study and personal observations of plants growing on different rock and soil formations.

Prizes for table plant were awarded to Messrs. Meyers and Cossam respectively, and for Onions (not transplanted) to Messrs. Crouch and Adams.

NEWCASTLE AND DISTRICT HORTICULTURAL.

The annual dinner of this Northern Society was held on the 13th inst. The President, Alderman W. Bramble, Lord Mayor of Newcastle, presided. The company included many local horticultural traders, and Mr. J. N. Kidd representing the Northern Apple Culture Society, E. Brough, Esq., Chairman of the Newcastle Flower Show, and W. E. Anderson, Secretary of the Four Northern Counties Fruit Congress. It was stated that during 1922, members of the society had won 154 first, 104 second and 38 third prizes at shows, as well as innumerable special prizes, including cups, medals, etc. In 1919 the membership was 38; it now totals 178.

The Lord Mayor said that the progress made by the Society did the greatest credit to the officials concerned. He wished the Society all prosperity.

During an interval in the toast list, the Lord Mayor presented the prizes to the winners of the Society's awards. The prize-winners were: Society's yearly prizes.—Mr. W. Bright (426 points), 1; Mr. M. Larke (Low Fell), 2; Mr. T. Rutherford, 3. Prize offered for special exhibits.—Mr. G. W. Howard (Whickham). Medal presented by *Gardening Illustrated*, for a collection of vegetables.—Mr. T. Rutherford. Medal presented by Mr. T. Rutherford for Tomatos grown by an amateur.—Mr. R. Rankin; the Royal Horticultural Society's certificates.—Mr. J. Haley (Chrysanthemums); Mr. G. W. Howard (Cypripediums) and Mr. A. Standing (Narcissi).

Mr. W. Anderson (Gardener to Sir James Knott) was presented with a smoking outfit in recognition of his kindness in arranging an outing for the members at Wylam last August.

READING HORTICULTURAL BRANCH OF THE YOUNG FARMERS' CLUBS.

At the fortnightly meeting of the Reading Branch of the above Society, held on the 19th inst., Mr. W. F. Giles reported that at the forthcoming "Ideal Home Exhibition," in March, Messrs. Sutton and Sons had promised to help the Young Farmers' movement by planting a model garden plot with vegetables, somewhat similar to the plots which the members cultivate at Reading. The *Daily Mail* had again, as at the Royal Show and the Imperial Fruit Show, offered to bear the entire cost of two members going to the exhibition for a week to explain to visitors the Horticultural Section of the Young Farmers' Clubs. Mr. Giles also stated that by the generosity of the President of the Canadian Pacific Railway, four boy members of the Young Farmers' Clubs were to have a trip to Canada this summer, without any expense to their parents, visiting the principal farming centres and ending with a free course at the Alberta Agricultural College. The *Daily Mail* hoped that one of the four chosen would be a horticultural member, and invited applications from any members of the Reading branch who were over 14 years of age.

Obituary.

Bartholomew O'Neil.—Born at Villierstown, Co. Waterford, Ireland, in 1846, Mr. B. O'Neil went to the United States when quite a young man, in a sailing ship. For a considerable period he lived at Memphis, Tenn., and subsequently took up residence at Chicago, where his first important work was the planting of a large number of trees at Riverside. In 1872 he joined Mr. Charles Jackson, the pioneer florist, at Elgin, and in the course of a year or so commenced business in the same city on his own account, where he remained until his death. One of Mr. O'Neil's sons, now deceased, was for a considerable time a traveller on behalf of Messrs. Vaughan's Seed Store, Chicago. Of the two surviving sons, one is a doctor in the Panama Canal zone.

John Hall.—We gather from the American trade papers that Mr. John Hall, nurseryman and seedsman, of Detroit, Mich., died on December 22, 1922. Mr. Hall was born in England so far back as 1845, and went to the United States while quite a young man, taking up his residence at Rochester, New York. In 1872, he entered the service of Mr. James Vick, seedsman, and greatly assisted him in the development of his business. For several terms of office Mr. Hall acted as park commissioner for Rochester, and mainly through his instrumentality Rochester now possesses one of the finest systems of parks and playgrounds in the country. From 1912 to 1916 he was secretary of the American Association of Nurserymen, and for over forty years acted in a similar capacity for the Western New York Horticultural Society.

TRADE NOTES.

Messrs. Watkins and Simpson, Ltd., 27 and 29, Drury Lane, W.C., are issuing a handsome coloured plate representing their special strains of Asters, for advertisement purposes. The plate is thirty inches by twenty-one and a half inches. It is a reproduction from a painting by Miss Winifred Walker, and depicts sixteen flowers, representing as many distinct varieties. It is a very effective plate, and the colouring is good. The varieties represented are: Victoria, salmon pink and dark blue; Late Branching, rose and white; Giant Comet, mauve and salmon-rose; Hercules, dark blue and brilliant rose; Ostrich Plume, crimson and lilac; Eclipse, salmon bronze and violet; Paeony-flowered, rose and dark blue; sinensis, snow white and cinnabar-red.

Mr. F. R. Ridley, President of the National Federation of Fruit and Potato Traders' Associations, was one of the chief guests at a dinner held under the auspices of the Newcastle and District Wholesale Fruit and Potato Merchants' Association, on the 17th inst. Mr. Arthur Bradnum, president of the local Association, presided over a large gathering which included the Lord Mayor of Newcastle.

Replying to a toast by Mr. George Leatherland, "The Corporation and the Commercial Interests of Newcastle," the Lord Mayor said that the City Council was doing its best for the trade. They were committed to an expenditure of about a quarter of a million for quay extensions, work which would in due course put the quay on a thoroughly good and satisfactory basis. He thought that any congestion in the vicinity of Newgate Street and St. Andrew's Street would in time be obviated, now that the Council had agreed to purchase property adjoining the market to give facilities to free the streets for ordinary traffic.

After Mr. G. E. Eyvell had proposed the toast of "The National Federation," Mr. Ridley responded. Business had of late been rather depressed, he said, and it was up to them to consider how they could get their produce to the markets at the lowest cost. They had been successful in getting a classification which he thought would prove acceptable to the trade; also, in getting certain concessions as to rates, though they had applied in November for an extra 25 per cent., which was turned down. The 25 per cent. subsequently announced was on passenger traffic, and his opinion was that it was a somewhat subtle move on the part of the railway companies to throw dust in the eyes of the public, for it should be made clear that the 25 per cent. reduction did not apply to goods traffic.

NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

520.—Derwent Foundry Ltd.—Lawn-mowers January 6.

258.—Warden, P. G.—Gardening appliances. January 4.

35356.—Ahai Glass Co.—Forcing agent of manure. December 29.

1226.—Hind, B.—Garden shears. January 13.

703.—Wilson, A. A.—Apparatus for sweeping lawns. January 9.

34511.—Stabback, A. G. M.—Preservation of flowers, fruit, etc. December 18.

34439.—Torkington, M. E.—Horticultural labels. December 18

SPECIFICATIONS PUBLISHED THIS MONTH.

190834.—Thomson, G. G.—Implement or appliance for use in gathering fruit.

188324.—Chisholm, F. K.—Tennis courts and other line markers.

190609.—Printz, W.—Fertiliser distributors.

189826.—Arkinstall, H.—Watering-can roses.

ABSTRACT PUBLISHED THIS MONTH.

Insecticides.—Patent No. 189037.—A preparation for protecting trees from mealy bug and other insects, has been devised by Mr. J. W. Walkley of 17, Lime Street, Great Grimsby. It comprises an extract made by boiling the young shoots and leaves of Elder trees in water. Sulphate of copper, sulphate of iron, nicotine, soft soap, and methylated spirits are added to the extract, and in some cases slaked lime is also added.

This list is specially compiled for *The Gardeners' Chronicle*, by Messrs. Rayner and Co., Regd. Patent Agents, of 5, Chancery Lane, London, from whom all information relating to patents, trade marks, and designs can be obtained gratuitously.

Messrs. Rayner and Co. will obtain printed copies of the published specifications, and forward post free for the official price of 1s. each.

ANSWERS TO CORRESPONDENTS.

COTTAGER, UNDER GARDENER AND AMATEUR GARDENER: *E. B.* A helpful definition of cottager is as follows: "*A bona fide* cottage gardener is a person not employing any assistance in the cultivation of his garden or working for any other person as a gardener, assistant gardener, day gardener, or a market gardener." The Royal Horticultural Society regards every one as an amateur who does not grow horticultural produce for sale; but in local societies this broad definition is not usually regarded as sufficient, and there are often definitions as "those not employing a gardener regularly." A professional gardener is one employed in a private, public, or market garden, and an under gardener would come under a similar definition, but would be a person responsible to the chief gardener or departmental foreman, instead of to the employer.

MARKET CROPS FOR UNHEATED GREENHOUSE: *Grower, Liverpool.* Seeing that you utilised the house for a crop of Tomatos followed by one of Chrysanthemums, the best flowers to grow for succession would be Sweet Peas and Gypsophila elegans grandiflora alba. The Sweet Peas should be sown in September, five seeds in a 60-sized pot. The seedlings should be ready for planting in well manured trenches when the Chrysanthemums are over. The Gypsophila may be sown in drills, provided there is room, and they would constitute a useful crop in conjunction with the Sweet Peas.

MARKETS.

COVENT GARDEN, Tuesday, January 23, 1923

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.

Fruit: Average Wholesale Prices.

Apples,—	s. d. s. d.
British Columbian	
—Jonathan ..	9 0–12 0
—Other varieties	7 6– 9 0
Californian	
—Newtown Pip.	10 0–11 0
—Oregon ..	11 0–14 0
English, per bus.	
—Allington Pippin	2 0– 5 0
—Blenheim Pippin bushel ..	7 0– 8 0
—Bramley's Seedling ..	4 6– 8 0
—Cox's Orange Pippin best ½ bushel ..	6 0–10 0
—Newton Wonder	5 0– 8 0
—Wellington ..	4 6– 6 0
Cherries	
—Belgian lb. ..	0 4– 0 6
Nova Scotian,	
—Fallawater ..	16 0–20 0
—Baldwin ..	16 0–20 0
—Nor'n Greening	15 0–18 0
—Russet ..	26 0–30 0
Bananas, singles	15 0–27 6
—doubles ..	15 0–27 6
Grapes	
—Alicante ..	2 0– 3 0
—Almeria, barrel	25 0–30 0
—Gros Colmar ..	2 0– 4 0

	s. d. s. d
Grape Fruit—	
—Florida	20 0–24 0
—Jamaican ..	22 6–25 0
Lemons	
—Messina boxes	12 0–14 0
—Murcia ..	12 0–16 0
Nectarines ..	10 0–12 0
Nuts—Brazils ..	45 0–52 6
—Cob	2 – 2½
Oranges,	
—Denia ..	12 0–20 0
—Murcia ..	14 0–20 0
—Blood	14 0–18 0
—Seville ..	– – 17 0
—Bitter	7 0–10 0
—Jaffa	11 0–12 6
Pears, — Winter Nelis, case ..	23 0–26 0
—Stewing, ½ bus.	3 0– 3 6
Pineapples, case	19 0–25 0
Tunis Dates, doz. cartons ..	4 0– 6 0
South African Fruit	
—Apricots ..	4 6– 6 0
—Peaches, box	6 0–14 0
—Pears ..	5 0– 8 0
—Plums, Methley box	3 0– 4 0
—Santa Rosa, box	5 0– 7 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, bundle	
—Special Devon	11 0–12 0
—French ..	10 0–14 0
Beans,	
—Guernsey lb. ..	3 6– 7 0
—Madeira basket	3 0– 6 0
Cabbage, tally ..	1 9– 3 0
Carrots, cwt. ..	2 6– 3 6
Cauliflowers, doz.	3 0– 4 6
Celery, roll ..	1 3– 2 6
—Celeriac, doz.	3 0– 4 0
Cucumbers, doz.	15 0–30 0
Endive, doz.	
—English ..	1 6– 2 0
—French ..	2 0– 2 6
Lettuce, French	1 3– 1 6
Mint, doz. ..	6 0– 9 0
Mushrooms, lb. ..	2 0– 3 0

	s. d. s. d.
Onions—	
—Dutch, bag ..	3 9– 4 0
—English, cwt.	5 0– 5 6
—Valencia, case	8 0–10 0
Parsnips, cwt. ..	2 6– 3 6
Potatos,	
—Guernsey, new, lb.	1 0– 1 4
—Dunbar ..	£5 10–£6 10
—King Edward	£3 15–£4 10
—Others ..	£2 10–£3 5
Rhubarb, Forced, doz.	1 9– 2 6
Savoys, tally ..	3 0– 4 6
Seakale, punnet	1 6– 1 9
Sprouts, bushel	3 6– 4 0
Tomatos	
—Canary Islands	16 0–24 0
Turnips, cwt. ..	2 6– 3 6

REMARKS.—Improvement in buying has encouraged a rather better tone, and although prices have not materially advanced, produce has cleared more satisfactorily. Peaches, Apricots, Nectarines, Plums and Pears from South Africa arrived in first-rate condition and moved out freely. A firm demand rules for available supplies of hothouse Grapes at slightly improved prices. Supplies of Apples from all sources are abundant for the present demand. Home-grown Apples are a slow trade; although values for the finest packs are maintained, medium and second grade Apples are not wanted. Bananas are not so keenly inquired for, and are quoted easier. Oranges are cheaper Choice vegetables such as French Beans, Asparagus, new Potatos and Seakale, have been in good demand, values being well maintained. Green vegetables, although not so plentiful, show no increase in prices. The Potato trade is quiet, with ample stocks on offer.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz. ..	10 0–18 0
—elegans ..	10 0–12 0
Aralia Sieboldii ..	10 0–12 0
Araucarias ..	30 0–48 0
Asparagus plumosus ..	12 0–15 0
—Sprengeri ..	12 0–18 0
Aspidistra, green	48 0–72 0
Asplenium, per doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Azaleas, 48's per doz.	30 0–48 0
—60's	18 0–24 0
Cacti, per tray, 12's, 15's ..	5 0– 6 0
Crotons, per doz.	30 0–42 0
Cyclamens, per doz.	24 0–30 0

	s. d. s. d.
Cyrtomium ..	10 0–15 0
Erica melanthra	
,, 48's per doz.	24 0–36 0
,, nivalis 48 ,,	24 0–30 0
,, 60 ,,	10 0–15 0
,, Thumbs ,,	6 0– 8 0
Genistas 48's per doz. ..	15 0–18 0
Marguerites, per doz.	18 0–24 0
Nephrolepis, in variety ..	12 0–18 0
—32's	24 0–36 0
Palms, Kentia ..	24 0–30 0
—60's	15 0–18 0
—Cocos ..	24 0–36 0
Pteris, in variety	12 0–21 0
—large 60's ..	5 0– 6 0
—small	4 0– 4 6
—72's, per tray of 15's ..	3 6– 4 0
Solanums, per doz	10 0–12 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum, decorum, doz. bun.	12 0–15 0
—cuneatum, per doz. bun. ..	8 0–10 0
Asparagus, plumosus, per bun.	
long trails, 6's	4 0– 5 0
med. sprays ..	2 6– 3 6
short ,, ..	1 0– 1 6
—Sprengeri, per bun.	
long sprays ..	2 6– 3 0
med. ,, ..	1 3– 1 6
short ,, ..	0 9– 1 0
Azalea white per —doz. bun. ..	4 6– 5 0
Camellias, white per box ..	4 0– – –
Carnations, per doz. blooms ..	3 0– 5 0
Croton leaves, var., per bun.	2 6– 4 0
Chrysanthemum pink, per doz. bun.	36 0–42 0
—white	36 0–48 0
—per doz. blooms	
—white	5 0– 9 0
—yellow ..	6 6– 8 0
—pink	5 0– 8 0
Daffodils, single, per doz. bun. ..	12 0–18 0
Fern, French per doz. bun. ..	1 0– 1 3
Forget-me-not per doz. bun. ..	12 0–15 0
Freesia, white, per doz. bun. ..	3 0– 6 0
French Flowers	
—Acacia (Mimosa) per bunch ..	1 6– 2 0
—Anemone, mxd. per doz. bun. ..	18 0–21 0
—Lilac, white, per doz. sprays	4 0– 6 0
—Marguerite, yellow, per doz. bun.	5 0– 6 0
—Marigolds, per doz. bun. ..	4 0– 4 6
—Narcissus, Paper White, per doz. bun. ..	5 0– 6 0
Soleil d'Or, per doz. bun. ..	5 0– 6 0
—Roses Safrano per pkt 24's ..	2 6– 3 0
—Ranunculus, Scarlet, per dz. bun.	9 0–12 0
Carmine per doz. bun. ..	10 0–12 0
Orange, per doz. bun. ..	18 0–21 0

	s. d. s.
Scarlet, Romano large, per doz. bun.	18 0–21
—Violets, Parma per bun. ..	5 0– 6
Single per doz.	3 0– 4
Heather, white per doz. bun.	4 0–10
Hyacinth, white, per doz. bun. ..	10 0–15
Iris tingitana, per doz. bloom	4 0– 6
Lilium longiflorum	
—speciosum long per doz. ..	10 0–12
short ,, ,, ..	9 0–10
Lily of the Valley, per doz. bun.	24 0–42
Narcissus, Guernsey	8 0–10
Orchids, per doz.	
—Cattleyas ..	18 0–30
—Cypripediums	4 0– 6
Pelargonium, per doz. bunch, double scarlet	10 0–12
Richardias (Arums) per doz. ..	8 0–10
Roses, per doz. blooms—	
—Frau Karl Druschki ..	3 0– 4
—Madame A Chatenay	— — —
—Melody ..	10 0–15
—Niphetos ..	— — —
—Ophelia ..	— — —
—Liberty ..	— — —
—Richmond ..	— — —
Smilax, per doz. trails	3 0– 5
Snowdrops per doz. bun. ..	4 0– 6
Violets, single ..	3 0– 6
Tulips, Single—	
—white, per doz. bun.	15 0–18
—yellow, per doz. bun.	12 0–15
—pink, per doz. bun.	24 0–30
—scarlet, per doz. bun.	18 0–24
—terra cotta, per doz. bun. ..	18–0–24
—mauve, per doz bun.	30 0–36
—double pink per doz, bun.	24 0–30
—double yellow per doz. bun. ..	30 0–36
—double red per doz. bun. ..	36 0–42

REMARKS.—In this department the requirements during the past week have been somewhat limited, there being no great demand for any particular subject. Lilium longiflorum is at the present time one of the scarcest flowers on the market, therefore prices are considerably higher. Of Chrysanthemum the main supplies are disbudded blooms of Cheshunt White, a few Baldock's Crimson, and Negoya (yellow), but coloured varieties are practically finished for this season. Daffodils are daily increasing, and now consist of Emperor, Henry Irving, Golden Spur, and princeps, with a few double Van Sion. Tulips are now a very prominent line, and a better selection is offered, including some fine blooms of Couronne d'Or, Murillo, Salvator Rosa, and Vuurbaak, and the quality is much finer. The newest arrivals are the blue Iris tingitana, Snowdrops, Primroses and Anemone fulgens. Larger supplies are now being received from the Channel Islands, consisting of yellow and white Narcissus, Freesias, Daffodils, Smilax and Violets. Narcissi are arriving in fine condition. In the French department similar conditions prevail as last week. Paper White Narcissus and double white Stock remain firm in price owing to a more limited supply. Acacia (Mimosa), Anemones, Violets and Marguerites find a ready sale. Large supplies of Tulips and white and mauve Lilac are being received from Holland in excellent condition.

GARDENING APPOINTMENT.

Mr. J. Parr, for three years Foreman at Houghton Hall, King's Lynn, as Gardener to VISCOUNT GALWAY, Serlby Hall, Bawtry, Yorkshire.

CATALOGUES RECEIVED.

Seeds.

D. G. PURDIE, 6, Waterloo Street, Glasgow.

EDMONDSON BROS., 10, Dame Street, Dublin.

J. C. WHEELER AND SON, LTD., Gloucester.

TOOGOOD AND SONS, LTD., Southampton.

S. FINNEY AND CO., LTD., Grainger Street, Newcastle-on-Tyne.

UPSTONES, 35, Church Street, Rotherham.

Plants and Sundries.

J. CHEAL AND SONS, LTD., Crawley.—Hardy flowers.

BLACKMORE AND LANGDON, Bath.—Begonias, Delphiniums, Gloxinias, etc.

GODFREY AND SON, Exmouth, Devon —Chrysanthemums

JOSEPH BENTLEY, LTD., Chemical Works, Barrow-on-Humber, Hull.—Weed Destroyers, Insecticides, etc., and Sundries.

THE
ardeners' Chronicle
Vo. 1884.—SATURDAY, FEB. 3, 1923.

CONTENTS.

ble land, the spring wakening of .. 57
oks, notices of—
  lowering Plants of South Africa .. 57
lb garden, the—
  rocus Sieberi .. 63
  alanthus poculiformis 63
our in the garden in inter 65
mercial horticulture the Isles of Scilly .. 66
entra spectabilis .. 67
ra of the Antarctic gions 58
rists' flowers—
  hrysanthemum Mrs. Jack Pearson .. 65
ardeoers' Chronicle." venty-five years ago 59
ticultural societies, ocal 58
oor plants—
  lianthus 61
  piphyllums .. 61
w, special exhibits of otanical interest at 57
hid notes and gleanngs— 62
Plants new or noteworthy—
  Pieris taiwanensis .. 63
Rhododendron 64
Secretary, an absconding 58
Sedums, some early-flowering 62
Sherwood, Mr. E., presentation to 58
Societies—
  Aberdeen Gardeners' 68
  British Carnation .. 68
  Gardeners' Royal Benevolent Inst... 67
  Manchester and N. of England Orchid .. 68
  Reading and District Gardeners' .. 68
  Royal Horticultural .. 69
Trees and shrubs—
  Rhododendrons on limestone 59
  Sciadopitys verticillata 59
Veitch, Mr. H. Morgan .. 58
Weather, special forecasts of London .. 57
Week's work, the .. 60

ILLUSTRATIONS.

ple Ball's Pippin 67
ysanthemum Mrs. Jack Pearson 65
nthus puniceus albus flowering in the open in a Devon garden 61
ffodil bulb, life cycle of a "broody" 66
ris taiwanensis, seedling plants of 63
adopitys verticillata, cones of 59
tch, Mr. H. Morgan, portrait of 58

ERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.6°.

TUAL TEMPERATURE :—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 31, 10 a.m. Bar. 30.3; temp., 51°. Weather—Dull.

The Spring wakening of rable Land. The discoveries of recent years of the many and varied parts played by soil bacteria in affecting for better or worse the fertility of the d make the term "the living earth" no re figure of speech, but the expression of logical truth. Like the plants which grow on it, the earth has its seasons of quiesce and activity, of rest and awakening. e fact that the resting period coincides th the winter season and the awakening th the coming of spring has naturally led all to believe that climatic conditions demine the state of quiescence or of activity arable soils. For example, it is usual to ribe the slowing down of plant activity ich takes place in autumn and the ickening which occurs in spring, the one falling and the other to rising soil temperare. Nor is there much doubt that this planation is, at all events in part, correct. t, nevertheless, it is unlikely that it will ove to be a complete explanation. During e winter, lands of temperate regions are nerally subject to heavy rains and the re subtle effects of these deluges have rcely been considered. It is known, of urse, that they produce a large and costly chage of soluble nitrates, so that when rification begins again in spring or early mmer there is much leeway to be made . For that reason, good cultivators give top dressings of quick-acting nitrogenous fertilisers, such as nitrate of soda, to the crops which they desire to coax into vigorous growth. It is possible, however, that the winter rains are the agents of other and beneficent operations of soil tillage. That this is so is at all events rendered probable by the results of the interesting observations made by Monsieur Lumière.* Setting out from the hypothesis that the roots and other remains of plants which grew in the soil in the previous summer produce in the course of their decay substances inimical to germination, he experimented with cultivated garden soil, dividing a portion into two parts, of which one was merely watered with distilled water, but the other washed repeatedly with distilled water. The pots of earth stood in a congenial temperature presently presented very different appearances. Seeds which had lain dormant in the soil began to germinate and cover the surface of the earth with seedlings in the case of the repeatedly washed soil, but none appeared in the soil which had not been washed. In order to confirm the conclusion that germination in the case of the unwashed soil was delayed and held up by the presence in it of toxic or inhibitory substances, Monsieur Lumière made water extracts from garden soil in winter. From them he obtained a solution which, when used for watering, prevented all germination at any season of the year. The seeds were scotched, not killed; for when the extract with which they had been watered was washed out from the soil, they germinated normally. The substances of unknown nature which are contained in the soil and prevent germination are highly resistant to heat, withstanding a temperature of 130°C. for half an hour. These observations naturally recall to mind those made by the late Mr. Spencer Pickering on the effect of one plant on another. They may, if confirmed, throw new light on the meaning of the capriciousness of germination of some kinds of seeds. Such seeds may be peculiarly sensitive to soil inhibitors or, for all we know, may contain in their coats some of these substances. It would be an interesting experiment to ascertain whether refractory seeds, e.g., of species of Primula, etc., would or would not germinate better and more quickly if they and the soil in which they were to be planted were washed repeatedly before sowing.

Flowering Plants of South Africa.—Part 9 of Vol. III. of the *Flowering Plants of South Africa* thoroughly sustains the interest created by the earlier issues of this useful publication. It contains ten illustrations, together with descriptive text of each species illustrated. The first figure, plate 81, is of Clematopsis Stanleyi, a fairly common plant in certain parts of the Transvaal. This is a plant of shrubby habit from eighteen to twenty-four inches high, with elegant, bipinnate leaves; the attractive flowers vary in colour from white to pinkish heliotrope. This is followed by Mimetes hottentotica, a Protead bearing heads of eight to twelve flowers, the latter appearing in the axils of the uppermost leaves; the red stigmas tipped with yellow are particularly conspicuous. The next plate is of Senecio Medley-Woodii, which has large, terminal flower heads borne in lax clusters. This species has a melancholy interest, as it was the last one upon which Dr. Medley Wood worked the day previous to his death. Then follows Protea compacta, a plant collected by Dr. I. Pole Evans, at Hawston, and now in cultivation at Kirstenbosch; this has large heads in which the inner involucral bracts are flesh-coloured or carmine, and practically hide the small flowers. Gerbera plantaginea, plate 85, is an acaulescent plant from the Magaliesberg, and bears solitary heads in which there are two rows of ray florets of pale straw colour tinged with pink. Plate 86 represents Aloe variegata, a species known since about 1772, when it was collected by Carl Thunberg. It has stout, keeled and pointed leaves which are variegated with white on a blue-green ground; the tubular reddish-pink flowers are carried on erect spikes. Ceratotheca triloba, plate 87, is an herbaceous plant, growing sometimes to a height of six feet. It has four-angled, purplish stems and tubular flowers, the latter with a wide-lipped mouth, somewhat resembling in general outline the flower of a Pentstemon. Dicoma Zeyheri, plate 88, is a curious Composite in which the flowers are borne in a capitulum, with prominent involucral bracts. The red and yellow stamens are the most prominent part of the flowers. The stems and under sides of the leaves are downy. Hyobanche Fulleri, a parasitic herb with fleshy stems, has showy inflorescences with broad, overlapping bracts of a deep red colour, these almost hiding the small and inconspicuous flowers; the final plate is of Romulea Austinii, a pretty little Irid, about three or four inches high, gathered at Matjesfontein. The outer segments of the flowers are pale yellow, the three inner ones deep yellow, and each has a curious, spade-like, purplish-brown mark.

Special Forecasts of London Weather.—The Air Ministry announces that weather forecasts are at present issued three times daily for the meteorological district of South-East England, which includes London, the South-Eastern Counties, and the coast from Margate to the Isle of Wight. The advances which have been made in forecasting have now made it possible to differentiate between the anticipated weather of London and the weather of the South-Eastern Counties and coasts, and, as the majority of the people of London are interested in the weather of London itself, it has been decided to issue separate forecasts for the Greater London area, roughly defined by a circle of 10 miles' radius from Charing Cross. The issue of these forecasts commenced on February 1, 1923. The earliest daily issue will be made about 10 a.m. (G.M.T.), and will forecast conditions for a period of 24 hours from the afternoon (about 3 p.m.); the second, covering a period from midnight to midnight of the following day, will be made at about 3 p.m. (G.M.T.); and the third, also from midnight to midnight of the following day, but taking account of later information, at about 8 p.m. (G.M.T.). The first and second forecasts will be available for the early and late editions respectively of evening newspapers, and the third for morning journals.

Special Exhibits of Botanical Interest at Kew.—Most of the items on the notice-boards at the principal gates of Kew Gardens indicating the "objects of special interest" from day to day have in the past mainly catered for the general public. Kew, as is well known, is also visited by botanical students, and it is pleasing to note that attention is being drawn to subjects of special scientific interest. One item to which reference is made on the boards this week is the examples of phyllodes and cladodes in the South Octagon of the Temperate House. The group forming the special exhibit shows examples of the reduction or loss of the leaf-blade. In some instances the leaf-stalk is modified and functions as a leaf (phyllode). In other examples the specialised arrested development of an axillary shoot serves the purpose of a leaf (cladode). The eight groups into which these are divided, with living representatives of each, are as follow: (1) Flattened and expanded phyllodes, sometimes with leaves attached, Oxalis bupleurifolia, Acacia melanoxylon, A. cultriformis, A. pycnostachys and A. armata; (2) needle-like phyllodes, Acacia tenuissima; (3) long, cylindrical phyllodes, Acacia extensa; (4) reduced leaflets and green leaf-stalks, Rubus cissoides; (5) needle-like cladodes, Asparagus Sprengeri; (6) expanded, spiny cladodes, Colletia cruciata; (7) broad, expanded cladodes,

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* *Comptes rendus de l'Academie des Sciences.* CLXXI. 18. Paris.

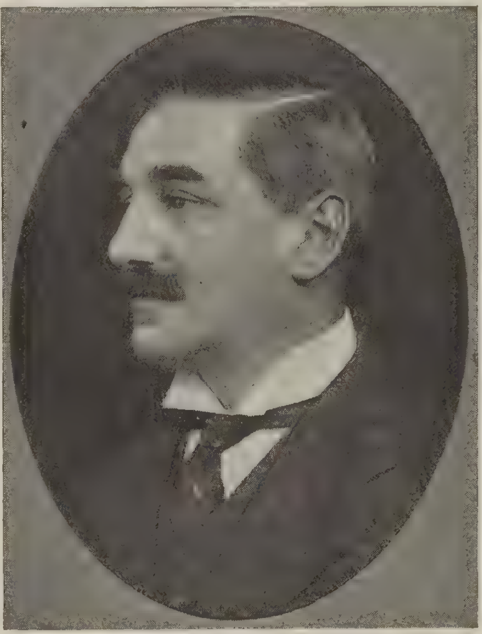
Semele androgyna, Phyllocladus trichomanoides, Phyllanthus angustifolius, Muehlenbeckia platyclada; (8) long, narrow cladodes, Carmichaelia australis. To compare with these. Acacia aurea, with normal leaves, is placed in the group.

"**The Kitchen Garden.**"—The Woolwich and District Memorial Hospital Horticultural Association is holding its annual meeting on Monday, February 5, in the old Town Hall, Woolwich. The general business will commence at 7.30 p.m. and will be followed at 8 p.m. by a lecture on "The Kitchen Garden," by Mr. E. Beckett. The lecture will be illustrated by lantern views. Special efforts are being made to provide a large audience for Mr. Beckett, and the enthusiastic committee of the Woolwich Association is ambitious to make the annual hospital show one of the best in the country.

Flora of the Antarctic Regions.—On the occasion of the recent meeting of the Linnean Society, Dr. Rendle introduced Capt. G. H. Wilkins to an interested audience. Capt. Wilkins gave an account of the Shackleton-Rowett Expedition in the "Quest" to the Antarctic Regions. On St. Paul's Rocks no plants save a few Algae were found, but at South Georgia, an island about 100 miles long, and 20 miles broad, a considerable collection was made, though the flora is fairly well known; and reindeer thrive. Lichens and mosses only were observed on Elephant Island; Tristan da Cunha was visited and 16 species gathered; Gough Island is known from the "Scotia" reports; the most conspicuous member of the flora is Phylica arborea, growing to 20 feet; a variety of Sophora tetraptera is now described. Tussock-grass, Ferns and Empetrum grow luxuriantly, and an Apium, hitherto confused with congeners, is now described. The specimens have been presented to the British Museum by Mr. J. Q. Rowett. The lecture was illustrated by a series of fine lantern-slides. After some discussion and a reply by Capt. Wilkins, Mr. E. G. Baker gave a résumé of the flora of Gough Island, twenty flowering plants and ten Ferns being now known from it. Amongst these may be named the endemic Cotula goughensis. Rud. Br., Hydrocotyle leucocephala, Cham. and Schlecht; Gnaphalium pyramidale, Thouars; Rumex frutescens, Thouars; and Empetrum nigrum. L., var. rubrum, Hemsl. The only small trees on the island are the Phylica and Sophora previously mentioned. There is also a new species of Apium allied to A. australe. Thouars, but having broad cuneiform segments to the leaves. The widely-spread Fern Lomaria Boryana, Willd., reaches a height of from two to three feet.

Presentations to Mr. Edward Sherwood.—In connection with the marriage of Mr. Edward Sherwood to Miss Keeling, an interesting ceremony took place on Thursday afternoon last, when he was presented, on behalf of the members of the staff of Messrs. Hurst and Son, in London and elsewhere, with a handsome silver tray, suitably inscribed. In making the presentation Mr. W. Cox drew attention to Mr. Sherwood's long connection with the firm, the masterly way in which, as a young man, he had grasped the details of a complicated business, and the good relations that had always existed between the principal and his assistants. On their behalf the speaker wished him long life and happiness in the wedded state, and asked him to accept the tray as an indication of the regard in which he is held by all who serve under him. In response, Mr. Sherwood thanked the members for the beautiful present they had handed him. He referred to the twenty years he had been managing partner, and said that the undoubted success that had attended the firm for so long had been brought about largely by the loyal co-operation of the staff with the principals. He thanked them for their good wishes, and hoped soon to have the pleasure of introducing them to his future wife. He concluded by assuring them that he appreciated the gift more than he could express in words, and the gathering terminated with cheers and expressions of mutual esteem. Among many other gifts from friends, Mr. Sherwood received a beautiful and suitably engraved silver cigarette box from the officers and committee of the National Sweet Pea Society, of which society he is hon. treasurer. The wedding took place on Saturday, January 27.

Mr. H. Morgan Veitch.—Mr. H. Morgan Veitch is by profession a solicitor, but apart from being the son of such a well-known horticulturist as the late Mr. Arthur Veitch and nephew of Sir Harry J. Veitch, he is intimately associated with horticulture in a variety of ways, for he is solicitor to the Gardeners' Royal Benevolent Institution, to the Chamber of Horticulture, the Central Chamber of Agriculture, the Federation of British Growers, the Horticultural Trades Association, and the British Florists' Federation. Apart from all this he is a member of very many of the gardening societies and associations, as well as a keen supporter of the gardening charities; he presided at the annual meeting of the Gardeners' Royal Benevolent Institution on the 25th ult., as stated in our report of the meeting on page 67. He was born in 1870, and was educated at St. Leonard's School and Malvern College. He passed his solicitor's final examination in 1891, and was Honoursman and Kent Law Society Prizeman. He has written extensively on commercial, horticultural and agricultural law, and has contributed many valuable articles to the *Gardeners' Chronicle* on matters of law as affecting gardeners and horticulturists generally. He has served as a captain to the 2nd (now 5th) Volunteer Battalion of the East Surrey Regiment, and passed in war tactics at Chelsea Barracks with distinction. Mr. Veitch is a fine athlete, and has excelled in swimming, lawn tennis—he is an old member of the All-England Lawn Tennis Club—and in his younger days was a keen footballer, being an old member of the Kent County Football team. Beside all this, he is a very capable musician. Mr. Veitch is of fine physique, and his commanding personality makes him a notable figure at important gatherings. Although one of the busiest of men, he is usually present at the principal horticultural meetings and exhibitions; and he has a wide circle of friends, by whom he is greatly esteemed for his genial manner, his readiness to help, and his gifts as a conversationalist.



MR. HARRY MORGAN VEITCH.

A Veteran Gardener.—Mr. J. Harwood, gardener to the Queen Victoria Jubilee Convalescent Home, Durdham Down, near Bristol, recently celebrated his 86th birthday. He has held his present position since the home was first opened, nearly a quarter of a century ago, and has still the full confidence and regard of the Board of Governors. An excellent portrait of this veteran gardener appears in the *Western Daily Press*, from which our particulars are taken.

The Potato and Hay Crops.—The Ministry of Agriculture's crop reporters state that the quantity of Potatos on the farms on January 1 was estimated at upwards of 2,300,000 tons or nearly 60 per cent. of the total quantity lifted; corresponding figures for last year are not available, but stocks of Potatos now on hand are heavier than in any other recent year except 1919 when they were of about a similar quantity as a consequence of the record crop of 1918. The quantity of hay on farms was estimated at rather less than four million tons or 68 per cent. of the total crop. This is about 400,000 tons more than last year.

"**Gardeners' Chronicle**" **Directorate.**—At the recent half-yearly meeting of *The Gardeners' Chronicle* Company, Ltd., Mr. Chas. H. Curtis, Managing Editor, accepted an invitation to join the Board of Directors.

Local Horticultural Societies.—At the annual meeting of the West Bridgford Garden Holders' Association no fewer than one hundred and two members out of one hundred and twenty-five attended. Two of the members, Messrs. R. C. S. Ross and Mr. G. R. Myall were successful candidates at the last election of the local council in the special interest of garden holders. Mr. G. R. Myall was elected president of the Society in place of Mr. Ross, who retired.—Watford Horticultural Society has increased its membership from 166 to 186, and entries for last year's annual show increased by fifty per cent. The Society's balance sheet shows surplus funds of £39 15s. 5d.—Mr. F. Calkin, secretary of the Finchley Horticultural Society, stated at the annual meeting on the 12th ult., that the Society had got back to its pre-war status, and that they could look forward to the coming year with every prospect of success. The membership was stationary, for whilst many of the old members had dropped out, newcomers were enrolling and taking their places. The total receipts of the Society during the past year were £292, and there is a balance in hand of £35.—At the annual meeting of the Reading and District Gardeners' Association it was stated that the year 1922 was one of increased success and prosperity. The membership had steadily increased and the financial position was the strongest since the Association was formed in 1888. Mr. Councillor Frank E. Moring was elected president.—Alderman C. H. Cartwright, Mayor of Bournemouth, has been elected president of the Bournemouth Horticultural Society. The Society will hold a summer show in June and also an autumn show; five cups have been presented for competition at these exhibitions.—Alderley Edge and Wilmslow Horticultural Society only realised £20 15s. 6d. in admission money to their show last year, as against £102 4s. 2d. in the previous year, but a special effort resulted in a sum of £89 9s. 6d. being raised in aid of the funds. Through this contribution the Society has ended the year with a balance in hand of £91. after starting with a debit balance of £1 4s. 5d. The secretary, Mr. Burns, has resigned owing to ill health, and Mr. E. E. Loose has been elected to the office in his place.—Ipswich Gardeners' and Amateurs' Association had a most successful year in 1922, but sustained a severe loss in the death of their president, Mr. J. Morgan, who was one of the original members. Eight meetings have been held during the year, at which papers have been read by experts, and three successful outings were enjoyed by the members, to the R.H.S. Gardens, at Wisley, Orwell Lodge Gardens and Shrubland Park Gardens, respectively. The Society's fruit show in October was again very successful.—The Deal, Walmer and District Horticultural Society had a record number of exhibits at its autumn show last year. Members of the Society were successful in winning the challenge cup at the Sandwich show for the third year in succession, and it now becomes their property. The Society has lost by death during the past year a number of generous supporters, but the membership had increased during the year by ten. Lord George Hamilton was re-elected president. It was decided to hold a Rose and Sweet Pea show the last Thursday in June, and an autumn show early in November.—Periodical lectures of the Eastbourne Horticultural Society during 1922 were well attended, and the autumn Chrysanthemum show was a great success. The chief event of the year was the holding of the National Sweet Pea Society's show, at Eastbourne, in July last, and the committee record the honour paid to the Society, through the Secretary, who was presented with the N.S.P.S.'s gold medal in appreciation of his valuable services. Sir Charles O'Brien Harding, who was re-elected president, said at the end of this year he would come of age in regard to the office.—A new horticultural society is to be formed in South London, under the title of Southwark Horticultural Society. It is intended to hold a flower show in the forthcoming summer and to encourage the growth of flowers in window boxes, and to offer special prizes to children attending the schools of the Borough for the best display of flowers. A brighter Southwark is to be the motto of the newly-formed society.—Brighton, Hove and Sussex Horticultural Society had a most satisfactory year in 1922. The number of entries and the amount paid for admission at the November show constituted records. A substantial increase in the membership is reported, and the statement of accounts shows a balance in hand of £188 as compared with £95 in 1921. After twelve years of office, Mr. A. J. Gaston, the secretary, who has had a serious illness, resigned, and the meeting decided to make Mr. Gaston a life member of the Society, and in recognition of his valuable services to grant him £20 from the funds. It was decided that this should form the nucleus of a testimonial fund to which members of the public should be asked to subscribe. Mr. H. J. Bingham was elected to fill Mr. Gaston's place.

An Absconding Secretary.—The Secretary of the Southall and District Horticultural Society, Ltd., has been expelled from the society. In October last he was called upon to produce the financial statement, which he did, and after that he was asked to produce the books. The latter were never forthcoming and there is evidence of them having been burnt. It has been discovered that a sum of £600 out of £1,245 has not been paid into the society's account. This includes rent owing to the local council for the past year. It was stated that the superior landlord's requirements had been met in full by the council, and in response to an appeal by the chairman a sum of £100 was forthcoming, much of the money being handed over to the chairman before the meeting dispersed.

Appointments for the Ensuing Week.—Sunday, February 4, Wakefield Tulip Society's meeting; Monday, February 5, National Chrysanthemum Society's annual meeting at R.H.S. Hall; Tuesday, February 6, Royal Caledonian Horticultural Society' meeting; Wednesday, February 7, Wimbledon and District Gardeners' Society's meeting, Lewes and District Horticultural Society's annual meeting; Thursday, February 8, Royal Gardeners' Orphan Fund annual meeting and election of orphans at Simpson's Restaurant, at 4 p.m., Wargrave and District Gardeners' Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Gardeners' Benevolent Institution.* We are happy to announce that at the anniversary of this Institution on Thursday last, under the able presidency of Lord Robert Grosvenor, the subscriptions at the dinner nearly reached the sum of £200, viz., £148 donations, and £50 annual subscriptions. Among the donations were: The Chairman, £20; W. Sturt, Esq., £10 10s.; Duke of Cleveland, £10 10s.; Robert Hanbury, Esq., £10 10s.; Dr. Lindley, £5; The Sheriffs, £10 10s.; Robert S. Holford, Esq., £10 10s.; W. F. J. Farmer, Esq., £5 5s.; Rev. J. H. Fisk, £5; Messrs. Henderson and Co., £5 5s.; and M. J. Webber, Esq., £5 5s. At the meeting in the morning, the usual routine business was transacted, and the accounts showed a small increase in the annual subscriptions. *Gard. Chron., Jan.* 29, 1848.

TREES AND SHRUBS.

RHODODENDRONS ON LIMESTONE.

If memory has not played me false, the subject of *J. P.'s* inquiry on page 26 has been dealt with already in *The Gardeners' Chronicle*; but as the behaviour of certain Asiatic species of Rhododendron on calcareous soil has received much attention of late, perhaps the following note may not be deemed superfluous. When Mr. E. H. Wilson first reported Rhododendrons growing upon limestone in Yunnan, we at home were inclined to doubt whether their roots were actually in contact with calcareous rock, or merely growing in pockets and crevices filled with humus. Observations specially directed to this matter by later collectors have amply confirmed the correctness of Mr. Wilson. Mr. Forrest has described many species as growing, not only in pockets and crevices of magnesian limestone in North-Western Yunnan, but flourishing in the limy talus at the bases of the cliffs, and also in soil full of limestone rubble. He has suggested that possibly the limestone of Yunnan is of different character from that usually occurring in Europe, and less soluble. He brought home with him specimens of the rocks and soil in which he found Rhododendrons rooted; but the result of analyses of these has not, so far as I know, been announced.

Mr. Forrest, however, also has been able to show that the under-surfaces of the leaves of Rhododendrons growing on limestone not only harbour a fungus, but that its mycelium penetrates the leaf, just as it has long been known to infiltrate and penetrate the roots of Rhododendrons growing in non-calcareous soil. Fungus has been detected in the indumentum covering the under-surface of the leaves of certain Himalayan Rhododendrons which will not suffer contact with lime or chalk; but I understand that in no case has it been found to penetrate the leaves of these species. The late Sir Isaac Bayley Balfour satisfied himself that the mycelium did penetrate the under-surfaces of the leaves of species collected from limestone in China, and spoke of the suggestion as obvious that the fungus, unable to endure contact with lime in the soil, had migrated to the leaves, where its function was to supply its host with free nitrogen from the atmosphere instead of fixed nitrogen from the soil through the roots. This, however, cannot be taken as more than a suggestion, awaiting examination and experiment. On the whole, it seems extremely probable that the presence of the fungus, whether on the roots or on the leaves, or on both, is essential to the welfare of all Rhododendrons; just as it has long been known that the Heaths (belonging to the same Natural Order as the Rhododendron) cannot thrive without the symbiotic fungus.

It might contribute towards a solution of the problem if the roots and foliage of Rhododendron hirsutum were examined, the only European species which were naturally on a limestone formation. *Herbert Maxwell, Monreith.*

SCIADOPITYS VERTICILLATA.

This very distinct Conifer is a native of Japan, where it attains a height of 100 feet to 120 feet, with a trunk girth up to 12 feet. It is placed in the Taxodinae group, which includes the Sequoias and Taxodium, but the *Botanical Magazine*, tab. 8,050, states it has "no obvious affinities or immediate allies" among living Conifers to-day. A single plant was sent home from Java by Lobb in 1853, but the largest specimens at Kew were raised from seeds collected by John Gould Veitch in 1861.

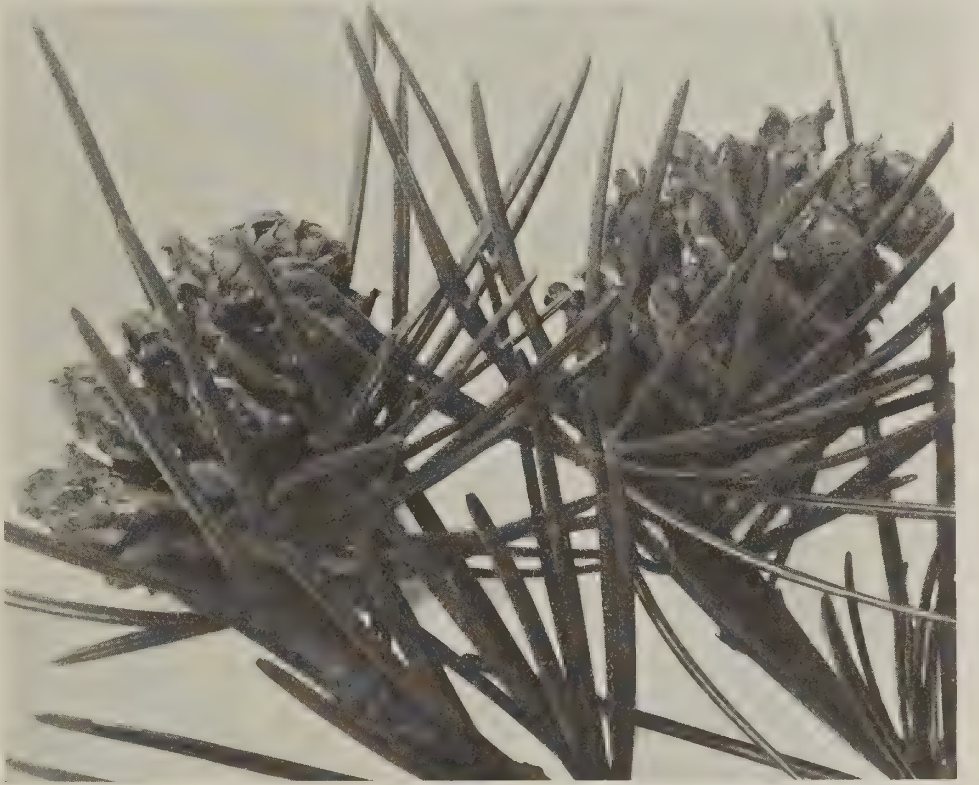


FIG. 28.—CONES OF SCIADOPITYS VERTICILLATA.

The popular name of "Umbrella Pine" refers to the arrangement of the cladodes (which function for leaves) and suggest the ribs of an umbrella. In habit this Conifer is of distinctly pyramidal growth, making a noble lawn or park specimen. Although self-sown native seedlings may not do so, transplanted cultivated trees develop numerous side shoots, which, if not stopped, soon grow, giving a bushy habit instead of the formal pyramidal appearance. In conversation with a Japanese botanist, I learned that the native trees attain a considerable size before producing cones. Transplanting evidently induces early coning, for at Kew we frequently have to remove cones from near the top of the trees to obviate a check to the leading shoot. The cones (see Fig. 28) take two years to mature, and are 1½ inch to 3 inches long and 1 inch to 2 inches wide.

The Sciadopitys is comparatively slow in growth. According to Elwes and Henry in *Trees of Great Britain*, the largest tree they found was at Hemsted, Kent, and this in 1905 was 38 feet in height. *A. O.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cattleya.—Cattleya Trianae, C. Percivaliana, and C. chocoensis, are the best known winter-flowering species; but many of their hybrids produce better flowers more freely, so that from a utility standpoint the species themselves may be ignored. As the plants named above all succeed under the same treatment, the following remarks apply to those of the different genera named, which have produced their flowers during the winter. After the plants have passed out of bloom, specimens that are beginning to develop new roots from the base of the last-made pseudo-bulbs may be repotted. The work is better done now than when the roots get longer, as the latter are easily broken and damaged if allowed to attain any considerable length. A suitable compost for these plants consists of equal parts of Osmunda, A.I., and peat fibres, mixed with live Sphagnum Moss and broken leaves. I still find that when a small proportion of good peat fibre is added to the coarser fibres, the root action of the plants is stronger, and the resultant growths more vigorous. The compost should be used according to the strength of the plants to be repotted. The stronger and larger the specimen, the rougher and coarser should be the material. For small seedlings it should be cut up comparatively finely, and slightly more Sphagnum Moss should be used. Strong plants should be potted firmly, whilst small seedlings should be made only moderately firm. In all cases the compost should be thoroughly cleaned, by removing all the earthy particles from the fibres.

Hybrids.—Many hybrids of Cattleya, Laelio-Cattleya, etc., are sending their flower spikes through the sheaths, and in order for them to produce their flowers in perfection, it is advisable to afford them all the light available, and sufficient water to keep the compost moist, until the flowers are fully developed, afterwards keeping them on the dry side until fresh roots commence to develop. This routine of culture, if carefully followed, will give the best results, and is applicable to this family of plants the whole year. These plants are subject to attacks of scale insects, and infested specimens should be dipped in an insecticide, or have their leaves and rhizomes sprayed with a nicotine insecticide, taking care to remove the pests from the whole of the plant. The scales secrete themselves under the outer skin of the old pseudo-bulbs, and this skin should be removed, and the scales killed.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Gooseberries.—Where the work has been delayed, the pruning of Gooseberries should be now completed, and lime, salt or lime-sulphur wash used as a protection to the buds from birds. This latter specific will also prevent many of the eggs of aphides and other insects from hatching. Gooseberries should be pruned in such a way that one's hand can be placed in the bush without touching the stems. For those who prefer small-berried varieties for preserving, Champagne, red, white, and yellow varieties, and the old Rough Red are suitable. The following is a selection of the many good varieties that grow to exhibition size:—Red: Crown Bob, Lancashire Lad, Windham's Industry. White: Whitesmith. Green: Keepsake. Yellow: Pilot (early), Husbandman (late). Up to the time of writing, the winter has been very mild, and it will be necessary to watch carefully for signs of insect life on Gooseberry bushes.

Standard Bush Fruits.—A new method of growing certain bush fruits, principally Red Currants, has been tried and appears to be meeting with approval, and certainly may be successful in well-sheltered gardens. It consists in growing them as standards about 4 feet to 5 feet high.

Crab Apples.—Besides their value for preserving, the fruits of Crabs are very attractive in the pleasure grounds. Indeed, a moderate use of high-coloured utility Apples will add a beautifying touch to the shrubberies, both in flower time and again in the autumn, by the colour of fruit and foliage.

Training Trees.—The Kent method of growing Apples in bush shape is largely superseding the usual system of pyramidal and other shaped trees. Young trees may be trained to a hoop, removing the central shoots. To keep the branches of older trees in place, stout sticks should be driven perpendicularly and just sufficiently high for the branch to be tied to it. There will thus be a circle of sticks on the outside of the tree. Cross-wedged sticks will be useful to fix inner branches of large trees in desired positions.

Hoeing.—Hoeing is as important in the fruit quarters as in the vegetable garden. As soon as the ground is dry enough, the soil should be hoed forthwith. Drought often occurs early in the year, with drying east winds, and growers should endeavour to conserve the soil moisture by hoeing freely, especially about small fruits, such as Strawberries. Where these fruits have received a dressing of short manure, this may now be lightly forked in the soil, but great care must be taken to prevent injury of the surface roots. Any decayed and discoloured leaves in the older plantations of Strawberries should be removed and burnt.

Nuts.—Nut bushes should be well thinned, keeping them open and restricted in shape similarly to bush Apples.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Exacum zeylanicum.—Young plants of this Exacum raised from seed sown last autumn should be ready for shifting from thumb pots into small sixty-sized pots. The compost may consist of equal parts of good mellow loam, peat and clean, coarse sand. This plant is best grown in a temperature of 60° to 65°, and requires careful watering at all times. It is not easy to cultivate successfully, but it is so beautiful that it is well worth all the trouble and attention one can give it.

Lathyrus pubescens.—This beautiful climber is easily raised from seed sown at this time. The plant is hardy against a wall in the south and west, but in colder parts of the country it requires the shelter of a cool house, in which it may be grown in large pots in the same way as Sweet Peas. It is, however, seen at its best if it can be planted out and trained over a trellis. The best position is on a raised bed in a cool greenhouse, training the growths to wires under the roof glass. In such a position it produces its sweetly-scented blue flowers very freely; they are very useful for furnishing a supply of cut blooms.

Lathyrus splendens.—This fine Californian species may also be raised from seed in the same manner as L. pubescens. It has beautiful crimson flowers, but it is not by any means such an easy species to grow successfully as L. pubescens. Like the latter species, the best system of planting is on a raised bed in a cool greenhouse.

Trachelium coeruleum.—This plant is very useful for autumn flowering in the greenhouse or conservatory. If seed is sown at this time and the plants grown on in 48-sized pots, they will make useful specimens for furnishing the plant stages during autumn. The young plants should be kept for the second year, when, if they are grown on into 8 inch or 10 inch pots, they will make large specimens for standing in beds in the conservatory.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Mushrooms.—Continue to make beds for the growing of Mushrooms, using horse-droppings and short litter mixed. Turn the heap daily for a fortnight, or until the heat begins to decline, then make the beds two or three feet thick, and tread the materials firmly. Leave the bed until the heat is again on the decline. Spawning may be done when the bed is at a temperature of about 75 degrees, which may be determined with a thermometer. Use reliable spawn, and break the bricks into fairly small pieces, placing the latter evenly over the bed in holes about two inches deep. Water the bed with tepid water, and, after about a week, cover the surface with about two inches of sifted, fibrous loam. Trap and destroy wood-lice and slugs, as these pests are both very destructive to Mushrooms.

Ground Operations.—Continue the work of trenching and digging as weather permits, leaving the surface as rough as possible. Heavy land should be left in ridges to allow the frost and rain to penetrate below the surface. Burn all garden refuse, and incorporate the ashes with the soil. Wheel manure on land during frosty weather.

Parsnips.—The Parsnip requires a long season of growth, and seed should be sown now. For ordinary use sow in drills drawn fifteen inches apart on deeply-dug ground, but do not sow in land that has been recently manured. The plot where Celery was grown is very suitable for Parsnips, as the soil has been well worked in earthing up the Celery, and is generally in a good condition. To produce roots of extra fine quality holes should be bored about four feet deep with an iron bar and filled with finely-sifted soil from the potting shed, making it moderately firm by ramming with a stout stick. Make a slight depression, sow two or three seeds in each station, and cover them with about half an inch of the finer soil. When finished, rake the bed with a fine iron rake and label each variety. Tender and True and the Student are two excellent sorts.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Early Peaches.—The earliest pot trees and those planted in borders are swelling their fruits, and, with the advancement of growth, the work of disbudding will necessitate close attention. Remove first a few of the strongest and worst-placed growths, taking care to preserve one at the base to form a shoot for future bearing. Young growths may be liberally removed from vigorously growing trees, but not so numerously as to cause a check to the tree; remove a number at intervals of a few days. Fumigate the house to ensure that the trees are clear of all pests. Thoroughly syringe the trees daily in fine weather; damp the paths and other bare spaces occasionally to promote a moderately moist atmosphere. A night temperature of 55°, with a rise of 5° by day, is sufficient warmth at present. The borders should be examined, and, if dry, watered liberally with tepid water. The hotbed material in which pot trees are plunged should be replenished, if necessary, to maintain a uniform temperature. A succession house may be started; the trees in this house will provide ripe fruits in June and July, according to the earliness or otherwise of the varieties planted.

Strawberries.—The earliest strawberries will soon be in flower. At that stage the atmosphere of the house should be rather dry, with a liberal supply of fresh air free from cold currents. Advantage should be taken of fine days to distribute the pollen; this may be done with a feather brush. As the plants pass out of flower, they may be afforded a higher temperature, if early fruiting is desired, otherwise a moderate amount of warmth will produce finer fruits and of better flavour. The temperatures should be 50° to 55° by night, and 65° on sunny days, whilst the plants are in flower. Further batches of plants may be ntroduced for forcing as required, into any rcing house that is started, or, failing these nto heated pits.

Muscat Vinery.—Muscat of Alexandria vines re slow in starting into growth, and require long season to finish and bring out the rich olour of the berries; it is therefore advisable o start them early, but if they are hurried n the early stages of growth they will break eakly and render the subsequent growths open o an attack of red spider. The foliage of uscat vines is more tender than that of most rapes

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THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Gorse.—Though this plant is well known, its value as a flowering shrub is often overlooked. At the present time in these gardens there is no more beautiful sight in the woodlands of sombre evergreens and defoliated trees than a clump of Furze in bloom. In bleak aspects and poor soils—both very trying conditions to certain kinds of shrubs—Ulex europaeus will thrive well, its hardiness adding greatly to its worth, while it also makes a splendid wind-screen for less hardy subjects. Gorse transplants badly; therefore, it is best to sow seed where a group is required, or to sow in pots and plant the seedlings out at an early stage. The double form, U. europaeus flore-pleno, is more valuable than the single, but this should be increased from cuttings and grown in pots until planted out. Where space is restricted the dwarf variety nanus should be chosen.

Clematis.—The climbing members of this family of plants are so valuable as to be worth a special reference regarding their pruning and planting. Before pruning a Clematis it is necessary to have a knowledge of the group to which it belongs, as some species flower on the young shoots, others on those of the previous year. Those flowering on the young shoots include varieties of the Jackmanii, lanuginosa and viticella sections, while varieties of patens, florida and montana bloom on the old wood and require no pruning beyond the removal of unripened shoots and dead portions. Those flowering on newly made growths may be shortened to any height one may wish—and this treatment is sometimes done in late autumn, after flowering, but the present is quite a good time to prune, in fact, it is the best time where the plants are in exposed gardens. The pruning of the members of the latter group may be omitted if the plants are not considered to be too leggy and untidy, and there is plenty of space for them to occupy. The planting of Clematises may be done now. They give best results in rather rich soils that are not too dry and to which has been added chalk or old mortar. Soils tending to be light in texture and porus should have strong loam mixed with them to help retain a reasonable amount of moisture, while very heavy land should be lightened by incorporting decayed leaves. In planting Clematises, bury the stems one or two eyes deeper under the ground than they have been before; this practice will encourage the formation of extra roots, thereby adding to the vigour of the plants. Although nearly all the species of this beautiful flowering family are in need of some support to climb up or ramble over, yet there are a few well suited to the herbaceous border, such as C. Davidiana, C. integrifolia and C. recta. For displaying a few climbing sorts to their best advantage I have seen nothing better than a method I employed in another garden. The bed was a large, circular one, and in it branches of trees about 4 feet to 6 feet long and a foot or so in diameter were partially embedded, their arrangement being quite informal, some leaning, others more or less upright. Between these the plants came up and no further assistance was necessary beyond an odd nail or two driven in the branches to hold in position a few of the strongest growths, leaving the other shoots to entwine or hang free.

INDOOR PLANTS.

CLIANTHUS.

Clianthus puniceus is an excellent subject for training on a pillar or rafter in the conservatory. It is easily raised from seed, grows fairly quickly, and its successful cultivation presents no difficulty, except that it is very subject to attacks of red spider, which, however, may easily be prevented by a free use of the syringe. There is a variety called magnificus, also a white-flowered variety named albus. The plant illustrated in Fig. 29 is growing on a warm wall in the South-West of England.

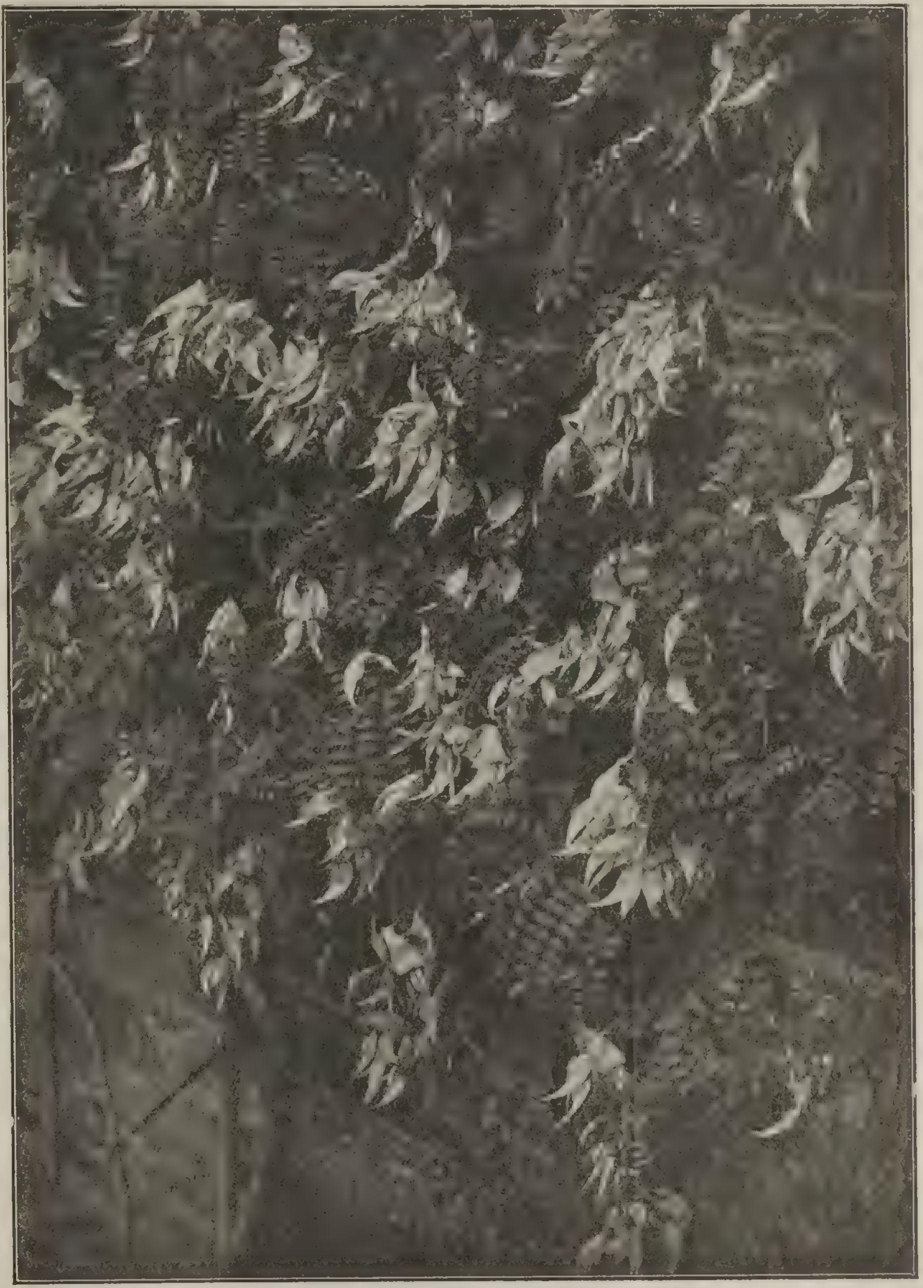

Fig. 29.—Clianthus puniceus albus flowering in the open in a Devon garden.

Clianthus Dampieri, the Glory Pea of Australia, is another beautiful species, with silvery grey foliage and gorgeous, red, claw-shaped flowers, with a black blotch.

Unlike the former species, this plant has always been a difficult one to cultivate successfully. Although it is raised easily from seed, its after-cultivation is difficult, the plant being impatient of disturbance at the roots.

The best way to grow it successfully is to graft it on seedling stocks of Colutea arborescens; this is the most delicate grafting operation I know, as the work must be done in the seedling stage. The growing point should be removed from the seedling Colutea, leaving the two cotyledons; the soft stem between them should then be split with a very sharp knife, the tiny Clianthus seedling cut to a wedge shape, and inserted in the slit, securing it with a strand of soft cotton. The plants should then be stood in a warm propagating case.

The plants may be successfully grown in baskets in a sunny greenhouse. They always do well planted out in a raised bed in a small span-roofed house, training the growth under the roof-glass. *J. C.*

EPIPHYLLUMS.

Epiphyllums are naturally epiphytal, with a somewhat delicate root system, and should be grown in comparatively small receptacles; a four-inch pot is large enough for a plant 18 inches across. They may be grown into specimens over a yard in diameter, but with age these large plants are liable to rot away in sections from the centre. A compost of light, fibrous loam, with the addition of a little brick rubble, will usually give the best results.

Growth ceases at the end of autumn, and after that period syringing should be discontinued, and the plants allowed more air and sunshine to thoroughly ripen the growths. *Fred. W. Jeffery, Dalserf, N.B.*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM EURYBIADES, THE DELL VARIETY.

A noble flower of this superb cross between C. Hera Euryades (Leeanum × Boxallii) and C. Alcibiades (Leeanum giganteum × Mons. de Curte) sent by Mr. J. E. Shill, gardener to Baron Schroder, The Dell Park, Englefield Green, confirms the generally accepted estimate of it as one of the largest and most perfect in form, and beautiful in colour, in its section. The flower also shows a probably abnormal feature, which, being regularly displayed, adds to its beauty. It has two perfectly formed dorsal sepals arranged in the usual position, but one on each side instead of in the middle, and both flatly displayed without any disturbance of the parts. The ground is pure white, with blackish claret heavily blotched lines, in which the influence of C. Mons de Curte is plainly seen. The broad petals and lip have a yellow ground tinged with chocolate purple. The plants comprising the Dell batch of this fine Cypripedium are all good, although the varieties The Baroness and Shillianum are considered the best.

ODONTOGLOSSUM ST. EMILION.

Pantia Ralli, Esq., Ashtead Park (Orchid grower, Mr. Farnes) sends the first flower of a beautiful new cross between O. eximillus (eximium x illustrissimum) and O. St. James (amabile x Amethyst) taken from a small, seedling plant, the slender stem having a good flower of rich colour and model shape. O. crispum and O. Pescatorei are the basic species in all the ancestors, with O. Harryanum twice intervening. The result is a perfectly formed flower resembling in shape an enlarged O. Pescatorei, the lip of that species being curiously reproduced. The sepals and petals are bright ruby-red with a violet shade, the margins being white and the tips bearing small, blush-white spots. The labellum, which is white in front, has a ruby red blotch before the clear yellow crest, the side lobes having short, clearly defined purple markings. The upper side of the column is also dark red.

LAELIO-CATTLEYA DODONA.

Flowers of this remarkable cross between L.-C. Haroldiana (C. Hardyana × L. tenebrosa) and L.-C. Nelthorpe Beauclerk (C. Enid × L.-C. Gottiana) sent by the raisers, Messrs. Cowan and Co., Ltd., Southgate, show the great beauty and variety in the small batch they were fortunate enough to raise. The firm first showed the variety at the R.H.S. meeting on October 31 last, when a First Class Certificate was received for the specimen, which bore orange-red flowers tinged with mauve, the lip being dark violet purple with gold disc. Four forms were shown at the first January meeting of the Royal Horticultural Society, this year; all were different and, like the flowers now sent, varied from yellow with claret lip to rosy-mauve with violet lip, but all having the clear gold disc and lines in the centre. The number of fine species in the ancestry, which always give good effect, while ensuring the good quality of each form, rarely give two hybrids alike in colour and shape of the flowers.

ODONTOGLOSSUM AQUILA.

Messrs. J. and A. McBean, Cooksbridge, send a pretty new cross between O. ardentissimum and O. l'Empereur, for recording. It has the best features of the lighter forms of O. ardentissimum, but with very broad sepals and petals, which make it a very perfect flower, and the lip, which partakes much of O. Pescatorei, is broad and well displayed. The sepals are white, the inner halves bearing dark reddish purple blotches, the central ones being the larger. The lip is white with purple markings in front of the yellow crest.

NEW HYBRIDS.

(*Continued from December 30, 1922, page 380*).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Lawrie	B.-C. Marguerite Fournier × C. Octave Doin	Stuart Low.
Brasso-Laelio-Cattleya Strathmore	L.-C. Nella × B.-C. Mrs. J. Leemann	Stuart Low.
Calanthe Stella	Ruby × Kewensis	Charlesworth.
Cattleya Amy May var. Theodora	Empress Frederick × Dowiana	Stuart Low.
Cattleya Edithiæ	Suzanne Hye × Trianae alba	Pauwels.
Cattleya Helvetia	Suzanne Hye × Lady Veitch	Sanders.
Cattleya Ingenieur Reyband	C. Comet var. Maroc × C. Hardyana alba	Mons. Marcoz.
Cattleya Linda	Cowaniae × Lady Veitch	Cowan & Co.
Cattleya Madame A. Lecler	Alfred Fowler var. Jean Payal × Warscewiczii	Mons. Marcoz.
Cattleya Octho	Octave Doin × Clotho	Stuart Low.
Cattleya Petrone	Andromaque × labiata Gilmouriae	Mons. J. Potin.
Cymbidium Doreen	Pauwelsii × Doris	McBean.
Cypripedium Baron Bultel	Gaston Bultel × The Baron	G. F. Moore, Esq.
Cypripedium Capstone Gem	Arthurianum × aureum Surprise	A. M. Gentle, Esq.
Cypripedium Chorltonville	Shogun × Pyramus	S. Gratrix, Esq.
Cypripedium Doris Stanton	Goliath × Pyramus	G. F. Moore, Esq.
Cypripedium Edith Gentle	Boadicea × Mrs. W. Mostyn	A. M. Gentle, Esq.
Cypripedium Fascination II.	Ceres × Beeckmannii	G. F. Moore, Esq.
Cypripedium Gwen Hanmer	Christopher × Florence Spencer	G. F. Moore, Esq.
Cypripedium Helene	Shogun × aureum	S. Gratrix, Esq.
Cypripedium J. M. Black	Eurybiades Mirum × Beryl	Flory & Black.
Cypripedium Kervalli	Actaeus langleyense × Mary Gratrix	A. T. Cussons, Esq.
Cypripedium Lady Bultel	Gaston Bultel × Lady Dillon	G. F. Moore, Esq.
Cypripedium Lawrie	Dicksonianum × Aisne	Stuart Low.
Cypripedium Luxor	Leeanum × Minos Youngii	Mrs. Bruce and Miss Wrigley
Cypripedium Memoria H. J. Elwes	Satyr × Christopher	G. F. Moore, Esq.
Cypripedium Miss Lily Kinnaird	Goliath × Troilus Archimedes	G. F. Moore, Esq.
Cypripedium Mrs. Eley	Christopher × Warrior	G. F. Moore, Esq.
Cypripedium Noel II.	nitens-Leeanum Bectoniae × Nirvana	Dr. Craven Moore.
Cypripedium W. H. Page	bourtonense × nitens leeanum Amazon	G. F. Moore, Esq.
Cypripedium Yellow Hammer	Fairrieanum × San-actaeus	Sanders.
Cypripedium Zenota	Zeno × Earl Tankerville	Mrs. Bruce and Miss Wrigley
Laelio-Cattleya Britannica	L.-C. Britannia alba × L. purpurata alba	Sanders.
Laelio-Cattleya Cavatina	L.-C. Bryan var. Duchess of York × L. Cowanii	Mrs. Bruce and Miss Wrigley
Laelio-Cattleya Cuderae	L.-C. Cupid × C. Schroderae	Sanders.
Laelio-Cattleya Emile Tilkin	C. Gudrun × L.-C. Bella	C. Sladden, Liege.
Laelio-Cattleya Intermezzo	C. intermedia × L. Cowanii	Mrs. Bruce and Miss Wrigley
Laelio-Cattleya Pasteur	C. Maggie Raphael × L.-C. callistoglossa	Mons. Marcoz.
Laelio-Cattleya rubrochila	Isabel Sander × Canhamiana Rex	Sanders.
Laelio-Cattleya Secretaire Grapin	C. amabilis × L.-C. Wellesleyi	Mons. Belin.
Laelio-Cattleya Yokohama	C. Blackii × L. Cowanii	Mrs. Bruce and Miss Wrigley
Odontioda Antinea	Odm. illustrissimum × Oda. Wilsonii	P. Smith, Esq.
Odontoglossum Andrey	eximillus × percultum	Pantia Ralli, Esq.
Odontoglossum Elizabeth	crispum Rossendale × Lambardeanum var. Gatton Prince	Sir J. Colman.
Odontoglossum Florence	Rolfeae × Rosalind	Mansell & Hatcher.
Odontoglossum J. H. Knight	eximium × eximillus	Cowan & Co.
Odontoglossum St. Emilion	eximillus × St. James	Pantia Ralli, Esq.
Sophro-Laelio-Cattleya Osmondii	S. grandiflora × L.-C. Wrigleyi	Mrs. Bruce and Miss Wrigley
Sophro-Laelio-Cattleya Warnathon	C. Warnerii × S.-L.-C. Marathon	P. Smith Esq.
Wilsonara Deception	Cda. Charlesworthii × Oncidium macranthum	Sanders.

SOME EARLY-FLOWERING SEDUMS.

Among the most notable of the Mexican Sedums which may be considered hardy is S. Palmeri, identified by its fleshy, spathulate leaves of a delicate emerald or glaucous green. These leaves are borne at the ends of the sprawling, or semi-decumbent, stems of 8-9 inches in length in bold, loose rosettes, from the centre of which appears the branched and spreading head of striking orange flowers. We grow this very beautiful plant in the open, and since it has already withstood considerable frost without injury it promises to maintain the reputation for hardiness which it has attained elsewhere. The date of the flowering under such conditions naturally depends greatly on the weather. Some plants in a sheltered corner of the rock-garden promise to bloom this year within the next few weeks, but, as a rule, they do not open their flowers until April or May. Those in the cold frame, however, may often be relied upon to give colour as early as February.

Near to the above comes S. compressum (rose), which in the open does not appear to be so early blooming as S. Palmeri. But in this instance, as in the other, much depends on the situation, weather and other factors. S. compressum may easily be distinguished from the foregoing by having sharply pointed, instead of rounded leaves, and these are not glaucous, but a pale grass green, with a tendency to become suffused with red, especially in autumn. Though also a Mexican plant this species is apparently quite as hardy as S. Palmeri. Rather shorter in the stem than the latter, S. compressum makes a more compact plant with more of a House-leek appearance. The blossoms are a fine, glowing orange, individually slightly larger than those of Palmeri and borne in a 2-3 branched cyme from the leaf rosettes. In the cold house or living room S. compressum will flower quite early in January.

Sedum confusum, another Mexican species, is at once distinguished from S. praealtum of cottage windows, which sometimes passes for it, by its much broader, less pointed, almost egg-shaped leaves. These are fleshy, vivid green, very glossy, and about 1 inch long. S. compressum will grow into the semblance of a small shrub, with woody branches 1 foot or more in height, the yellow inflorescences appearing early in the year on protected plants, and in March or April on those occupying sheltered positions in the open. This species has, so far, proved as hardy here as those already mentioned, and its ability to endure our winters out-doors has been reported from various parts of the country where a moderately mild climate prevails.

Among the spring blossoming Sedums, S. spathulifolium is one of the prettiest and most interesting, but this North American species appears in so many forms or varieties that even specialists cannot always agree as to the name which these should bear. The typical species, as found in the westerly mountains of British Columbia southward, is a close-growing little plant with rosettes about 1 inch across, the leaves being 1 inch long, grey green above and whiter beneath. These turn a soft dove or pale plum colour in autumn, but in some gardens this tint will suffuse the whole plant the year round. The other extreme, admitting an almost indefinite number of intermediate forms, produces rosettes 2 inches across, the leaves being larger and redder and the young foliage more mealy than in the typical plant. The purple of this form of S. spathulifolium, usually listed as "var. purpureum," generally attains its richest tone in autumn, at which season and later some of the outer leaves may become a brilliant crimson-scarlet.

In all varieties the flowers are yellow, and produced in a cluster at the branching head of a stiff upright stem, the individual blooms being unusually large. These flowering stems may be from 2 inches to 6 inches in height, according to the size of the plant.

In my experience the larger and finer forms of S. spathulifolium bloom much more freely than those nearer the type. Soil, situation and atmospheric conditions doubtless have coniderable influence on the development and olouring of most varieties of this Sedum, as one ay prove by planting several off-sets of the ame specimen in various parts of the garden. here is a variety of this species with almost ure green (not glaucous) foliage, and broad, piculate leaves which do not assume the red nt. It is known as "var. majus" and is isted under various other names, but of it I ave had no experience. *A. T. J., N. Wales.*

THE BULB GARDEN.

GALANTHUS POCULIFORMIS.

This variety of the common Snowdrop is metimes found wild, and readers who are in- erested in Snowdrops should carefully examine e flowers where Galanthus nivalis is grown quantity in the hope of finding Galanthus oculiformis, or a closely allied one, among em.

Galanthus poculiformis has two peculiarities. he first is that the inner and outer segments "petals" are of the same length. The second that the green markings which adorn the ner segments of the typical Snowdrop are sent and the blooms are entirely white. It is t a large, but an exceedingly beautiful little owdrop. It has two failings. One is that the wers in a clump of this variety do not always tain their complete purity, and that they may ve some blooms with more or less green arkings on the inner segments. The other is at it seems to be a little more tender than the pe. It was originally found in a garden in therland.

CROCUS SIEBERI.

With late January and early February we ave generally the delight of welcoming the ttle flowers of Crocus Sieberi, which, many ears ago, I acquired, prompted by what I was ld regarding it, that it was "a hardy ountaineer, anticipating all others."

Small in size, compared with the big Dutch ring Crocuses or even the lovely C. Imperati, . Sieberi is charming when growing in a small ump or scattered in grass. A group of even dozen flowers is very delightful in the border r on a sunny slope of the rock garden.

With the pretty lilac flowers open to the sun, ey constitute one of the most cheering sights e garden can bestow at this season. The rms are cheap, as Crocus species go; and they e best planted as soon as they can be obtained late summer or early autumn. This beautiful rocus is lovely in the open, and equally charm- g in the alpine house. *S. Arnott.*

PLANTS NEW OR NOTEWORTHY.

PIERIS TAIWANENSIS.*

Plants from the island of Formosa are very re in cultivation, and gardeners in general now very little about the rich flora of that markably beautiful island. A few collectors ng ago visited the low-lying western coastal inge, but it is only in quite recent years that has been possible for a white man to travel r into the interior. For our knowledge of e wonderful mountain flora of Formosa we are debted to Japanese botanists, and especially Dr. Bunzo Hayata, who has devoted some venty years of his life to its study. During e first three months of 1918, and again in the tumn of the same year, it was my good fortune visit Formosa, and thanks to facilities freely laced at my disposal by the Japanese Govern- ent and to the assistance of the forestry ficers, I was able to travel through a good deal the country. Among other places I ascended the summit of Mount Morrison, 13,075 feet bove sea-level, and the highest mountain in the apanese Empire; I also traversed the famous a-cliffs of north-eastern Formosa. These iffs are among the highest of their kind in the orld, and it was my privilege to be the first hite man to cross over their full length.

The collecting of herbarium specimens and taking photographs of the vegetation were the particular objects of my visits, but I did gather a few seeds, and among them some of Pieris taiwanensis. These seeds were collected in 1918, and were distributed by the Arnold Arboretum to friends in America and Europe. The plants raised from this new Pieris have already flowered in several gardens in America, Britain, Ireland and France, and a figure appeared in these pages in March, 1922 (*Gard. Chron.*, Vol. LXXI. 139, fig. 68). Its habitat, though high up on the mountains, is on the Tropic of Cancer, so the plant cannot be expected to be hardy save in favoured places like Cornwall or where an equally genial climate obtains. From reports I have received it promises to be hardier than I had expected it to be.

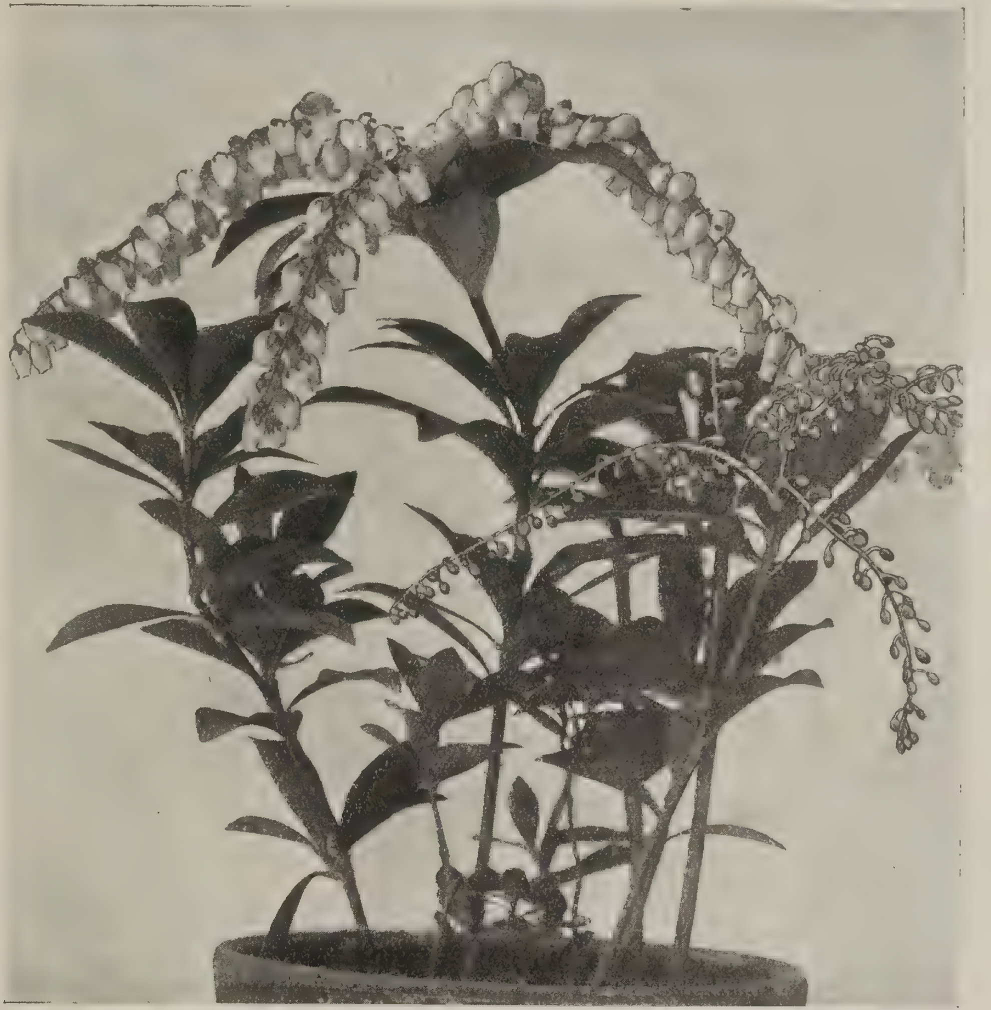

Fig. 30.—Seedling plants of Pieris taiwanensis flowering in a greenhouse in the Arnold Arboretum at Christmas.

It is very ornamental, and under glass in mid-winter flowers freely, even when quite small, and should be useful as a pot plant for the cool conservatory.

This Pieris is an evergreen shrub of compact bushy habit, occasionally 10 ft. tall, but usually from 3 ft. to 5 ft., and flowers freely when less than a foot high. The branches are ascending, rigid, winged when young by the decurrent petiole-bases, and are well clothed with scattered and crowded, shining green, oblanceolate to lanceolate, rarely elliptic-lanceolate, leaves, each from 2 to 4 inches long with a raised midrib and margins crenate-serrate in their upper half and the base narrowed to the short petiole. The flowers are urn-shaped, each about one-third of an inch long, pure white with a bright green calyx, and are crowded on terminal and axillary, erect panicles each from 5 to 8 inches high; on weak plants such as those depicted in the accompanying illustration (Fig. 30), the inflorescence is reduced to one or more spreading racemes each from 3 to 5 inches long. The flowers are pendent, and often the racemes, by the twisting of the flower-stalks, have the appearance of bearing no flowers on their upper side.

This new species is characterised by its rigid branches, by its leaves being non-retculate and crenate-serrate in the upper half only, and by its normally dense inflorescence, stout rhachis, peduncles and pedicels. The flowers in all species of Pieris are much alike, differing slightly in size and shape only. This Formosan species seems to be most closely related to the well-known P. japonica which has less coriaceous leaves with margins crenate-serrate from near the base and the secondary veins raised on the under-surface, a nodding inflorescence with slender rhachis peduncles, and pedicels and smaller flowers.

Another species in cultivation and common from Central China to the Himalayas is P. formosa, which may be distinguished by its larger oblong to elliptic-lanceolate leaves reticulate on both surfaces and serrated, often sharply so, from the base; its flowers are larger and rather broader in shape, and the inflorescence is upright, but less dense and more widespread than that of Pieris taiwanensis.

One new Pieris grows wild on the central mountain ranges of Formosa in open, grass-clad country between 8,500 and 11,000 ft. elevation. I gathered it on the ranges beyond Arisan in Kagi prefecture, toward Mount Morrison, where it grows associated with Rhododendron rubropilosum and other shrubs and where Pinus Armandii forms thin woods. In a wild state flowers are to be found on the plant at any season of the year. It is very floriferous, lasts in bloom a long time, and should prove a worthy addition to the list of ornamental, free-flowering, evergreen shrubs. *E. H. Wilson, Arnold Arboretum, Harvard University, Mass.*

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* Hayata in *Jour. Coll. Sci. Tokyo*, XXX., Art. 1, 169 911); *Icon. Pl. Formos.* II, 119, t. 14 (1912).

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RHODODENDRON.

A MELANCHOLY interest attaches to No. LXV. of the Edinburgh *Notes* (April, 1922), just issued,* as it contains, so far as is known, the last collected contribution to the study of Rhododendron by the brilliant intellect which has done so much of recent years to evolve genetic order out of chaos.

Those who had the privilege of Sir Isaac Bayley Balfour's friendship know how much he had a complete revision and enumeration of the genus at heart; how the leisure he had earned so well, though as we now know, at the cost of his life, was to be devoted to the completion of a task the magnitude of which might well have shaken the resolution of a lesser mind; and how, almost up to the last moment, all his energies were thrown into it.

Surely no skilled investigator could have been more worthily equipped for the work, nor more happily served, than was Sir Isaac Balfour. With a subject very near his heart; with new material flowing in on him in a constant stream, principally from a collector with whom he had the advantage of periodic personal collaboration; with a staff devoted to him and trained to his methods, and with one of the most complete herbaria in the world to his hand, only life and health seemed to be needed to enable him to put *finis* to what would indeed have been a *magnum opus*.

Apart from the *Diagnoses* of new species of Rhododendron which have been published in the *Notes* of the Edinburgh Botanic Garden and other directions since he began his study of the genus, Sir Isaac made a practice, in his correspondence with those who were specially interested in Rhododendrons, of elaborating his views on various species and their phyletic relationship. Many of these epistolary elaborations are not only of extraordinary interest to students of the genus, but are in themselves important contributions to the literature of it. Few more fitting tributes to Sir Isaac's memory could be conceived than that a collection of his printed papers and such parts of his private letters as are germane to the subject should be gathered together by competent and sympathetic hands. In years to come the work would assuredly take its place as a classic.

In the last series of *Diagnoses*,† those interested in the genus had perforce to be content with bare botanical descriptions of the 70 species dealt with. There was none of the illuminating analyses, none of the phyletic segregations which made previous enumerations of Rhododendron of such absorbing interest. There were excellent reasons for the brevity so noticeable in connection with the descriptions of new species in No. LXI. of the *Notes*, but the return to the earlier manner will be welcomed by all whose interest in the genus is more than superficial.

No fewer than 75 new species are reviewed in the present enumeration, and, as for many years past, the major part is Forrestian. It includes some of the spoils of Forrest's work in 1918-1919 in S.E. Tibet and N.W. Yunnan—the headquarters of the genus—in about equal proportions, with five species from his initial exploration of the Mu-li mountains in S.W. Szechuan (1918). There is, however, a fair leavening of Farrerian species, mostly dating from 1920, when Farrer was collecting in Upper Burma, and these all gain in interest by reason of the descriptive field notes of which their discoverer was so able an exponent.

Though they may contain all that the keeper of a herbarium needs, gardeners whose interest lies in a particular genus must often bewail the brevity of the field notes attached to specimen plants. The conditions under which plant collecting is carried on, especially in remote districts of Western China, no doubt make for brevity in such matters, but no one can examine the herbarium material of the famous French collectors who explored the country at the close of the last century without often wishing for a little more light in the darkness.

It is all the more refreshing, therefore, to find that Farrer contrived to break with tradition and give posterity field notes, of which those attached to his No. 926 and No. 1547 (R. aiolosalpinx) are typical: "N.E. Upper Burma, Chimili Pass, 11,000-12,000 ft. A small, graceful bush, extremely profuse in lovely flowers from pure or creamy-white through every shade of waxy-fleshy rose to clear rich pink, and even crimson; no scent. Five honey glands at the base in almost crested pinched-in folds. A very lovely plant indeed, common on open ribs of the bamboo brake and even below at 1,000 ft. on the flat rill-sides of the upper torrent courses, in half shade. N.B.—Leaf reverse creamy yellow, purple-edged. See painting. Farrer. No. 926. May 16, 1919."

"N.E. Upper Burma. Chawchi Pass, Nyitadi, etc. Alt. 10,500-11,000 ft. Flowering in the snow at 10,800 ft. This appears as a small, straggly bush here, not attaining such proportions (as far as seen) as it does on the Hpimaw ridge. White and creamy tones, too, vastly preponderate here over pink ones. On the Maguchi pass the plant is very fine, a 5-foot bush in wide jungles over the open alp. But here, too, the flowers, though notably large, are almost invariably cream-white. Farrer. N. 1547. May 15, 1920."

Six species of Kingdon Ward's collecting in 1919 and two Bhutan species from Cooper (1915) make up a list teeming with interest. To what extent any of them will prove amenable to open-air cultivation in Britain only experience can show, but we may expect to have difficulties with the Bhutan species and some of those from Burma.

Sir Isaac Balfour's predilection for the sanguineum series shows no sign of slackening, and interest will be whetted by his description of R. didymum, a Forrestian species from the Tsarong (without elevation) with flowers of the black-crimson hue already represented by R. haemaleum. R. liratum is another of the same series, but from the Shweli-Salween divide: "A hard, rigid plant of exposed places, with bright rose-carmine flowers, few in number. The happily-named R. sperabile is judged one of the finest species found by Farrer, who described it as a "small bush with erect new shoots—their shaggy investiture of white wool contrasting finely with the pure, clear scarlet of the rather waxy flowers hanging below."

R. damasceuum, a species from the Mekong-Salween divide, at 15,000-16,000 feet, is a tiny alpine carpeting plant of the campylogynum series, with the flowers thick, fleshy, and almost black, with a bluish bloom like that on a Plum; it grows as an under-plant among other Rhododendron, and is only a few inches high; R. codonanthum, from the same country, is described as "a delightful bright yellow-flowered species."

Sir I. Balfour's enumerations of Chinese Rhododendrons should be of particular interest to the earnest cultivator of alpine plants, for the number of dwarf mountain species reviewed is astonishing. Many of these are found near the limits of ligneous vegetation, growing in circumstances which assuredly render the business of life a precarious affair. Some of them, at any rate, should be like potter's clay in the hands of the skilful cultivator; others will no doubt be difficult to a degree. But cultural difficulties never baulk a determined cultivator, and whether easy or difficult, the number and quality of these alpine Rhododendrons are such as to absorb much o the time of a keen grower. Their cultivation requires very much less space than is needed by the bush and tree species which are in such excellent hands in this country, and it is possible that they may be successfully grown in situations and under conditions which would be fatal to their larger relatives. To those who are prepared to take some trouble, the possibilities of this section of the genus, treated as alpines seem almost unlimited. A commencement ha already been made on the rock garden at Inverleith, and the results are encouraging enoug to justify an extension of the limited fiel these species enjoy at present among a fe amateurs.

In any consideration of the work done by Sir I. Bayley Balfour in the classification o Rhododendron, the part played by the explore must not be overlooked. Indeed, as Sir Isaa often said, but for the discoveries of recen times, and principally those of Wilson an Forrest, there would have been little in th genus for him to deal with. No one knew better than he the difficulties and dangers whic beset the adventurer who goes plant-hunting i Western China, and none did more to encourage the intrepid men concerned. That th lion's share of the exploration carried on durin the last fifteen years should have fallen to Georg Forrest—himself an old Edinburgh boy—wa as great a source of gratification to the lat Regius Keeper as the epoch-making nature o the explorer's labours.

It was a happy train of circumstances whic led on the one hand to the master being furnished with botanical material by his old pupil and on the other ensured for the latter tha brilliant exposition of his discoveries which though no more than their importance merite can have fallen to the lot of few explorers. Th shade of Delavay may well be envious.

It is yet too early to appraise the work whic has been interrupted in such untimely fashio But no one—botanist or gardener—having t do with the genus, can have followed the progress of the classification without interes deepening to admiration. The gradual application of the principle of phyletic segregatio the initiation of the most interesting practic whereby the character of the leaf indumentu is employed as a fundamental criterion in th grouping of Rhododendron into recognisab series, if not for specific distinction; the exposition of geographical variations of species an series, not only between the Himalaya an China, but between one district of a Chine province and another, one side of a mounta range and the other, all showed the mast hand. *G.*

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* *Notes from the Royal Botanic Garden, Edinburgh*, April, 1922. Vol. XIII. No. lxv. Rhododendron: Diagnoses Specierum Novarum, II. By Prof. Sir I. Bayley Balfour, F.R.S.

† *Notes from the Royal Botanic Garden, Edinburgh*, Vol. XIII., No. lxi.

WINTER COLOUR IN THE GARDEN.

Although colour schemes in endless variety may be produced in the garden without difficulty for spring, summer and autumn effects, their provision to alleviate the monotony of the winter landscape calls for considerable foresight and ingenuity. Yet it is during the dull, drab days we are now experiencing that colour in the garden is most appreciated. Many flowering plants may be seen in full beauty during the winter, but their efflorescence is too capricious to be relied on as part of a definite colour scheme.

Brilliant winter effects may also be obtained from brightly coloured berries of many trees and shrubs, but here again fruition is very variable and uniformity cannot be ensured, moreover, the danger from the depredations of birds and other causes has to be considered. Hence, for regular colour effects in winter, the landscape gardener must depend mainly on shrubs and trees having a persistent foliage of varied hue, with the assistance of certain deciduous trees having coloured bark.

The most imposing appearance is presented, particularly from the distant view, when such subjects are planted in varied groups and masses, each consisting of the same species. Naturally it is easier to carry this out where space is not restricted, though pleasing results may be obtained in gardens of moderate size.

Probably the most gorgeous colour effect in winter is produced by massing the golden-leafed shrubs in groups. As an illustration of this it will be useful to describe the "Gold Garden" at Pyrford Court. This garden is nearly square, with sides about 80 feet long. It is enclosed by a golden Holly hedge, beyond which on each side is a belt of trees. Two broad turf paths traverse the garden parallel to the sides, the turf being widened where they bisect to form a circle in the centre, from which point one looks on four somewhat flattened, diamond-shaped beds. With the long diagonal of these beds as a base-line, large specimen standard and half-standard golden Hollies are planted at intervals of about 12 ft., which in effect gives an irregular wavy, chain-like ring to the whole garden. Extending about half-way towards the front are bold groups of golden Privet, golden Elaeagnus and Cassinia fulvida, while nearer the front are groups of the dwarfer growing golden Euonymus, golden Box and golden Yew, the intervening bays being planted with gold-flowering herbaceous plants for summer effect.

The band of trees at the back consists chiefly of Cupressus Lawsoniana lutea and Retinospora plumosa aurea for winter effect, and Ulmus Louis van Houtte, U. Dampieri, Acer Negundo aurea and Catalpa bignonioides aurea for summer effect.

The whole garden is a picture of dazzling brightness in summer, and in winter, especially on a sunny day, it is a joyous pleasaunce. In the light, sandy soil of the district the intensity of colour developed in these foliage plants is very marked, and the plants all flourish under dry conditions.

Another most charming colour effect in winter may be produced by planting in series of various subjects with coloured bark. Here again there is a wide choice of material. For brilliance of winter colouring of the wood I know of nothing better than the scarlet Dogwood, Cornus sanguinea. This is at its best at mid-winter, as after the fall of the year it deepens considerably in colour It is particularly suitable for use in conjunction with coloured Willows as a background or boundary to the lake or water garden.

There are several species of Salix, notably S. cardinalis (bright red) and S. alba vitellina (yellow). which are easily obtainable and may be associated with Cornuses for mass-planting with good effect. If bold groups of Pampas Grass are introduced into the scheme the grey foliage and inflorescence tend to show up the colours of the bark plants, particularly in the distant view. It is invariably in the young wood of coloured-bark plants that the most intensive colour is shown, hence hard pruning is desirable, though it need be practised only in alternate years. Indeed, if alternate groups are selected for attention each year a more varied and pleasing effect, particularly from the distance, can be obtained by a system of biennial pruning, owing to the difference in depth of colour between the younger and the older wood

Beautiful effects can also be obtained in the wild garden by contrasting dark foliage plants with those having light or coloured bark Everyone appreciates the striking beauty of a group of Silver Birch in conjunction with the sombre Scotch Pine. Similar pictures may be produced in many directions by the judicious blending of such subjects as Hippophae rhamnoides, Rubus biflora, Cupressus Lawsoniana Allumii, and other grey-coloured plants, with many of the handsome, dark-foliaged evergreens. *W. Auton, Pyrford Court Gardens, Woking.*

FLORISTS' FLOWERS

CHRYSANTHEMUM MRS. JACK PEARSON.

New varieties of Chrysanthemums are introduced in considerable numbers each year, and almost every variety put forward has some point of special merit or some difference of colour, form, or habit to distinguish it from its predecessors, but rarely has a raiser been successful in producing a variety which will flower continuously over a period of four months. Such success, however, has attended the efforts of Mr. Frank Ladds, the head of Messrs. P. Ladds, Swanley Junction and Bexley.

The variety in question has been named Mrs. Jack Pearson, after the wife of the head of the firm's sales department at Covent Garden. It is a golden-bronze variety, free branching, good alike in spray form or disbudded. When fully grown it is about three feet high, but its principal point of attraction and usefulness is that it continues to flower from the middle of July to the end of October. During 1922 the first batch of flowers was placed on the market on July 20, and the last cases of blooms were on sale on October 31. Between these dates regular and considerable consignments were cut and sold, and the prices obtained were excellent.

The plants were put out in the open ground during April and received no protection whatever. Another good point about this variety is that while making allowances for difference in the amount of growth produced, it commenced as early and was as continuous in flowering in the very hot season of 1921 as in the cooler and moister one of 1922. The accompanying illustration, Fig. 31, represents a few blooms taken from a market bunch exposed for sale in Covent Garden Market on October 31 last.

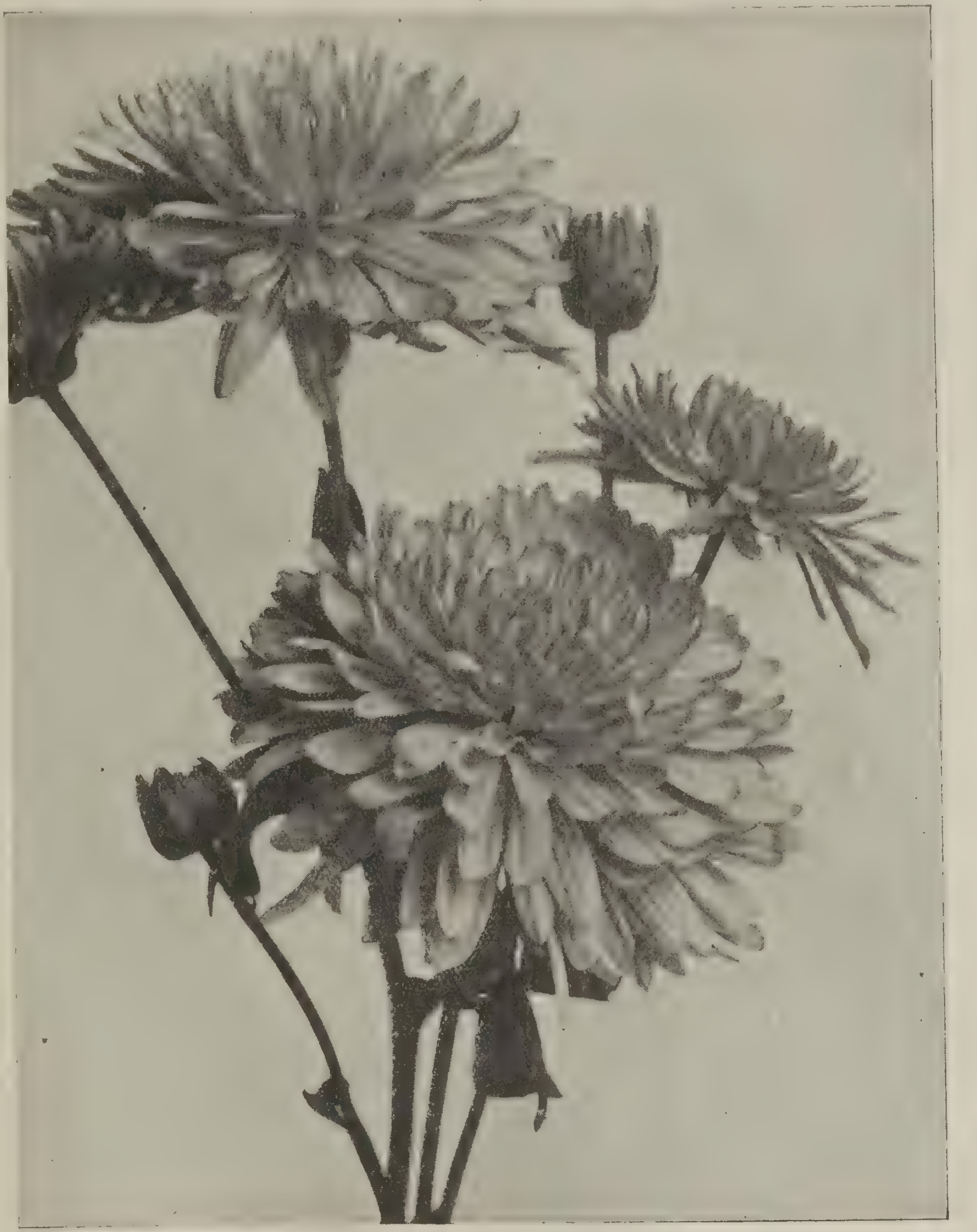

Fig. 31.—Chrysanthemum Mrs. Jack Pearson.

COMMERCIAL HORTICULTURE IN THE ISLES OF SCILLY.

Situated forty-three miles from Penzance and twenty-eight miles S.W. of the storm-swept Land's End lie the Isles of Scilly, so little known except to plant enthusiasts, so little talked about except by lovers of naked Nature. One could fill many columns of this journal eulogising the glorious naturalness of the scene, the vivid colouring and striking contrasts, the intense quietness, and the roaring wildness of the seas in the height of a tropical storm. Many a time have I watched seething cascades of green sea-water strike the rock called "Shipman's Head" with ruthless, reckless force, and the spectacle always leaves me with an immense impression of the utter futility, smallness, and impotence of human affairs.

Five islands of the archipelago are inhabited, and cultivation on horticultural lines is conducted on all. These islands are so grouped that they afford considerable protection to each other, and, owing to the comparative evenness of the levels, all aspects receive a considerable amount of sunshine.

The climate is extraordinary to the last degree; it can be fickle and determined, indifferent and passionate, mediocre and brilliant, all within twenty-four hours! The keen gardener under glass, with mainland training, finds the Scillies both the despair and joy of his life alternately, for he has no sooner ventilated his houses and frames on some brilliant sunny morning, than down comes the fog or the eternal wind becomes extremely active. This may go on all day, and, as I have said, the keen man will be constantly on the move regulating internal temperatures. Very little fire heat is required even in the dead of winter, which is very mild. Frosts seldom occur during autumn and winter, but the bane of our lives is the late spring frosts. Although scarcely ever is more than four degrees experienced, yet this amount may do considerable damage to the early Potato crops—running into thousands of pounds sterling. Extremes of temperature, however, are rarely met with, the average temperature for the past ten years being 47° in winter and 57° in summer. It is so mild that garden crops continue to grow right through the winter, and such plants as Cineraria and the common Pelargonium continue to flower out of doors all the year round.

The soil of the islands is wonderful. It is a light, hot, sandy loam resting on a granite formation in which felspar is prominent. It is very easily worked in all weathers, and is extraordinarily responsive to treatment in the matter of manuring, but very deficient in organic matter and lime. The islands will support so little live stock that the shortage of natural manure is a serious problem. Green manuring may help to solve this, and is being tried. As the soil is naturally rich and easily worked, the average islander has done very little to it for generations past, and the effect is now becoming evident—it is not so inexhaustible as was imagined. Analytical tests have recently been carried out on soils in all parts of the islands, and results indicate plainly an abnormal acid condition of all samples tested, in addition to a serious lack of nitrogen. The latter deficiency is recognised by growers generally, since large quantities of sulphate of ammonia are annually applied. But since the beneficial results from this form of nitrogen are largely dependent on the lime content of the soil, its action is very feeble, and in many cases, in addition to failing to react, does actual harm.

On Tresco this lime shortage has been made good in a rather novel manner. During the war period the Admiralty built an air station here, and all the buildings, floors of hangars, and so on, were constructed with concrete blocks. After the Armistice these were all razed to the ground, in the hope that the quick-growing sea-bents, Heather and Fern, would, in time, conceal the unsightly mass of debris. On chemically testing this unpromising-looking material, it was ascertained that roughly 10 per cent. of calcium carbonate was present. The farm tractor (the first and only one on these islands, by the way) was introduced to the stonecrusher, and many tons of very finely pulverised concrete materialised. This was subsequently applied to the land at the rate of ten tons to the acre, and the succeeding crops responded to an astonishing degree, thus proving the unbalanced state of the land chemically.

To make matters worse, huge quantities of raw seaweed, running into many thousands of tons, are annually applied to the land. This is drawn straight from the beaches, and, still soaked with sea-water, is carted on to the land at once. This method of procedure cannot but have a very deleterious effect on the soil, and many of the growers are aware of this now. Efforts are being made to form kelp or seaweed compost heaps a year ahead of requirements, and by doing this it is hoped to acquire all the potassic contents of the weed, minus the injurious sea salts.

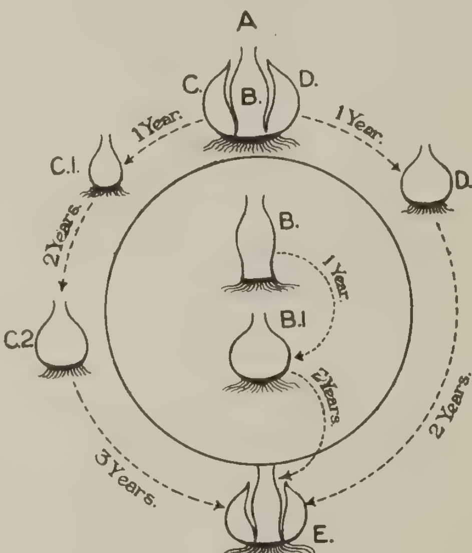

Fig. 32.—Life cycle of a "broody" daffodil bulb.

A, "broody" bulb; B, parent bulb; C, small offset; D, large offset; B1, C1, D1, first year development; C2, second year development; E, again "broody."

The wind here is a very serious factor in our calculations, and is of equal, if not superior importance to soil conditions.

Only on the favoured island of Tresco has the question of wind-breaks been seriously tackled. There are no trees of any consequence on the main and largest island of St. Mary's, nor on any of the off-islands. Tresco in the past has been very lucky in possessing a resident proprietor in the person of the late Lord-Proprietor, Mr. T. A. Dorrien-Smith. With wonderful foresight and business acumen he made strenuous efforts to plant shelter-belts of Cupressus macrocarpa and Pinus insignis. These trees were planted concentrically all over the inhabited portion of the island. Within these outer rings of trees a systematic scheme of shelter planting and fencing has been carried out.

The long, narrow strips of granite soil, termed "fields" (they are really alluvial deposits or pockets of soil which have been reclaimed from the Gorse and Ling) are divided by live hedges, stone walls or dykes, and a combination of cleft Chestnut and Rush fencing. The live hedges (Escallonia macrantha) are the most effective internal wind-breaks, but, though they lend beauty and dignity to the gardens, they occupy more room than can be spared in so restricted an area as the cultivable portion of Tresco. Hence these are giving way to the more economical, if prosaic, rush-thatched fence, topped with cleft Chestnut fencing. It is remarkable the amount of protection these fences give—outside the shelter-belt I have been buffeted by a wind blowing at from 60 to 70 miles per hour, yet on reaching the sheltered gardens all was calm, and delicate blooms were swaying about as in a gentle breeze.

The islands generally, agriculturally and horticulturally, are undergoing vigorous reconstruction, and preparations are under way for the reclaiming of more land for bulb and flower growing.

During 1922 the islanders experienced considerable good fortune in having a very heavy flower season, followed by an unprecedented demand for bulbs. It may be of interest to note that over seven hundred tons of flowers left these islands last season! The export of bulbs is a great reversal of pre-war conditions and practice. At that time flowers and Potatos were the mainstay of the community, and hundreds of tons of good, sound bulbs were thrown over the cliffs to make room for those which were to remain to flower!

A definite system and rotation with bulb culture has now been inaugurated in order to (1) control the flower crop, securing continuity of supply during the season; (2) to so lay out the fields that growers are prepared one year ahead for the following season's requirements.

A course of rotation has been adopted which covers a period of three years, since this covers the length of time the life cycle of a bulb involves. The drawing (Fig. 32) roughly describes the life history of a bulb, starting from planting size. We have on Tresco alone planted 250,000 large offsets of one variety alone (D), and wall-sided parent bulbs (B), which will be fit for either forcing or planting next season (D1 and B1), and a lesser number of smaller offsets (C) which will be ready in two years' time (C2). At the same time many hundreds of thousands of round bulbs (B1 and D1) have been planted to remain three years, and these will form our stock beds for the future (A and E).

The bulbs definitely put down for stock are planted much more shallowly than those intended for flowering. The larger and coarser the bulb, the deeper it is planted, and, of course, vice versa when working for flowers only, but when it comes to breeding for stock, this rule is not applied, because the less deeply a planting-size bulb is buried the more offsets are produced.

In order to lessen the costs of production, some of the growers on the Island of St. Mary's have adopted the system of grassing down all their bulb fields and grazing thereon immediately the flowers are picked. The more enlightened cultivators, however, understand that this method weakens the flowers, renders them later, and shortens the stems, hence a greatly depreciated market value. The bulbs also fail to split and multiply, and in reality the "bulb grazier" is living on his capital, whilst the bulb cultivator is increasing the value of his stock-in-trade all the while it is producing revenue.

The Island of St. Martin's, roughly two miles east of Tresco, vies with the latter in the keenness and capacity for hard work of its inhabitants. Exposed on its eastern aspects to the full force of the Atlantic gales, bleak and unsheltered, yet here are grown some of the finest bulbs in the world. Unremitting hard toil from daylight to dark has converted the island from a barren, rocky wilderness to an intensively cultivated area analogous to the wonderful small-holdings around Paris or Evesham. With marvellously patient industry, large tracts of blown sand have been enclosed by stone walls, and in some cases by live Euonymus hedges, and after heavy dressings of raw seaweed, often eight inches to one foot thick, young bulb offsets are planted to grow on for forcing or for sale. This super-light, sandy "soil" is used principally for the polyanthus Narcissi, particularly the ever popular and profitable Soleil d'Or, which revels in this medium, producing bulbs of surprising size and firmness, and blooms of extraordinarily intense colour and firm texture. *S. P. Wells, Tresco.*

(*To be concluded.*)

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Hybrid Veronicas.—The illustration and note of Veronica salicifolia in *Gard. Chron.*, January 6, prompts me to mention how very finely two of the garden hybrid forms flowered here last season. The several bushes of each variety were raised from cuttings during October, 1920, and were planted out in April of the following season. The position was at the foot of a wall between other shrubs and climbing plants, which, having grown to the top of the wall, had left the base somewhat bare and unsightly. The aspect was south-west, the soil fairly light in texture and warm, so that the plants grew freely and seemed to revel in the great heat we experienced that summer; during a portion of the day some distant shade was forthcoming from a fine old Yew hedge, which is a feature of these gardens. The names of the Veronicas are Purple Queen and Simon Delaux. The former is well known to many, but I do not think the other one is so common. The colour of the flowers may be described as rose, with a suspicion in some of the spikes of a faint purple intermixing. The foliage has a touch of claret in its green, so that this also is very attractive. *Henry Turner, Albury Park Gardens.*

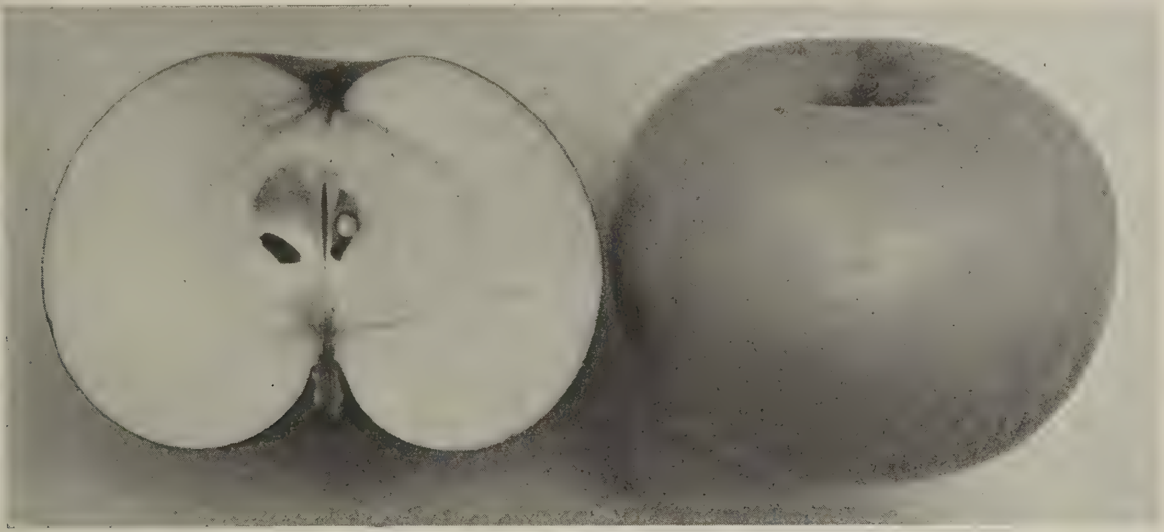

Fig. 33.—Apple Ball's Pippin: R.H.S. Provisional Award of Merit, January 16 (see p. 41).

Dicentra spectabilis.—In his interesting notes on p. 37, Sir H. Maxwell asks for information concerning success in growing Dicentra spectabilis. The finest specimen I have seen grew at Wierton, near Maidstone, for many years. This was planted close to a brick wall, fully exposed to the east, in a well-drained but otherwise quite ordinary soil. It soon grew to a large plant about 4 feet across, and almost the same in height, and being close to a public road it was admired very much when in flower; the only cultural assistance given was to run a string around the plant to prevent it from being blown down, and in November a covering of coal ashes about 6 inches thick was put over the roots. This remained until the young growths were well advanced in the spring, thus protecting them from late frosts, which otherwise cause damage; at the same time this covering checks the ravages of snails and slugs, which are fond of the plant in spite of the strong smell. I do not know the district around Monreith, but imagine the want of success may be owing to lack of sunshine. D. spectabilis absolutely revels in plenty of hot sunshine, provided it has a fair amount of moisture at the roots. It forces easily in a moderate temperature, but is not suitable for house decoration, as it gives off a strong odour when confined in a room. *W. H. Divers, V.M.H., Westdean, Hook, near Surbiton.*

SOCIETIES.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The annual meeting of the Gardeners' Royal Benevolent Institution was held at Simpson's Restaurant, Strand, on the 25th ult. There was only a small attendance, those present including Messrs. P. G. White, H. G. Cox, J. Hudson, O. Thomas, Leonard Sutton, A. Bullock, J. F. McLeod, A. Wood, W. E. Wallace, J. P. Rochford, C. H. Curtis, Alfred Dawkins, John Heal, Geo. F. Tinley, P. R. Barr, David Ingamells, P. Kay, J. Linford, H. Morgan Veitch, and J. R. Pulham. In the absence of the chairman and treasurer, Sir Harry J. Veitch, Mr. H. Morgan Veitch was asked to occupy the chair. Mr. Veitch thanked the company for proposing him to the chair, and stated that his uncle had hoped to be present with them, but his doctor would not consent to his coming.

After the secretary had read the notice convening the meeting, the report of the committee for 1922 together with the statement of accounts were presented to the meeting.

EXTRACTS FROM REPORT OF THE COMMITTEE.

It affords the Committee much satisfaction to submit their 83rd Annual Report, together with a statement of receipts and expenditure (as audited) for the year 1922. They desire to record their thankfulness that they have been enabled by the continued kind aid of the many friends of the Institution to maintain the good work on behalf of aged and distressed gardeners and their widows—which has been carried on with so much benefit for 83 years.

During the year several annuitants have passed away, five of whom left widows, whose cases on investigation having been found necessitous and worthy, they were placed on the funds for the widow's allowance for life without election in accordance with Rule III-13. Unfortunately the applications for permanent aid are exceedingly numerous, there being no less than 45 carefully approved candidates—26 men and 19 widows on the list for the coming election, of whom the Committee recommend that 18 be elected this day by the votes of the subscribers. Thus 27 poor people sadly in need of help will still have to wait for that permanent assistance which they so much need. It is a matter for congratulation, however, that all applicants who were formerly subscribers or contributors to the Institution will, whilst on the waiting list, receive a certain sum from the "Victorian Era Fund," whilst the "Good Samaritan Fund" also extends temporary and much deserved help in urgent cases of distress.

No less than 63 persons were relieved from these two funds during the year.

The Annual Festival Dinner on behalf of the funds was held by kind permission of the Worshipful Company of Grocers in their beautiful hall on June 27, under the presidency of The Rt. Hon. Lord Lambourne,

The chief items in the financial accounts are those following:—

RECEIPTS AND PAYMENTS OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

For the Year ending December 31, 1922.

RECEIPTS.

	£	s.	d.	£	s.	d.
To Balances with Bankers January 1, 1922—						
On General Account ..	807	0	2			
On Deposit Account ..	200	0	0			
Do. (Wolfe Legacy and Interest)	916	9	1			
Balance with Secretary January 1, 1922	4	14	3			
				1,928	3	6
Annual Subscriptions ..	1,015	17	6			
Donations	2,343	1	8			
Schröder Annuity	20	0	0			
Legacy—J. C. Geiselbrecht, Esq.	377	3	6			
Dividends and Interest ..	887	0	9			
Income Tax refunded ..	235	14	4			
Deposit Interest (Wolfe Legacy)	7	1	2			
				4,885	18	11
Gardeners' Company Trust Fund—						
Gift of 5% War Loan (per contra)				427	9	2
				£7,241	11	7

PAYMENTS.

	£	s.	d.	£	s.	d.
By Annuities and Gratuities ..				4,291	1	0
Rent, Fuel, Lighting and Salaries of Secretary and Clerk	660	10	11			
Expenses of Annual Meeting and Election	5	12	0			
Printing and Stationery .. 167 17 10						
Less Advertisements 39 8 0						
	128	9	10			
Cheque Books	11	9	2			
Postages: Reports, Polling Papers, Appeals and Ordinary	49	18	7			
Telephone Charges	11	3	0			
Cost of Wreath	3	3	0			
Carriage, Telegrams, Typing and Incidental Expenses ..	12	10	9			
Advertisement "Fry's Charities"	2	12	6			
				885	9	9
Gardeners' Company Trust Fund—						
Gift of 5% War Loan (per contra)				427	9	2
Balances with Bankers December 31, 1922—						
*On General Account ..	1,112	19	7			
On Deposit Account ..	523	10	3			
Balance with Secretary, December 31, 1922	1	1	10			
				1,637	11	8
				£7,241	11	7

(Signed) G. H. COBLEY, KAY & CO. (Honorary Auditors).
Chartered Accountants.

* £1,225 was required to meet quarterly payments due on December 31, 1922.]

P.C., C.V.O., V.M.H., who eloquently advocated the claims and objects of the charity, resulting in a very substantial sum being obtained towards the maintenance of the work.

Very sincere thanks are specially given to the following generous donors: Reginald Cory, Esq., Sir Edward Stern, Bart., Major Churcher, Messrs. Rothschild and Sons, Messrs. W. and E. Sherwood, Messrs. Sutton and Sons, Messrs. E. G., Geo. and B. J. Monro, Edward White, Esq., V.M.H., and Sir Harry J. Veitch (treasurer); also to the organisers of concerts, etc., in connection with the Altrincham and District Gardeners' Improvement Society. They also thankfully record the foundation of a "Trust Fund" in connection with the Institution by the Worshipful Company of Gardeners for the benefit of an annuitant.

The Committee are also again much indebted to the Rt. Hon. the Earl Beauchamp, K.G., Rt. Hon. Lord Northbourne, The Lady Battersea, C. W. Dyson Perrins, Esq., J.P., and Robert B. Corbett, Esq., for so kindly allowing their beautiful gardens to be opened to the public for the benefit of the Institution. They have also much pleasure in acknowledging the kind services of Messrs. Morgan Veitch and Bilney (honorary solicitors) and of Messrs. Geo. Cobley, Kay and Co. (chartered accountants), for their honorary services in auditing the accounts. They would also again record the thoughtful kindness of Sir Harry J. Veitch, Leonard Sutton, Esq., J.P., C.B.E., Mrs. Monro, Major E. G. Monro, Geo. Monro, Esq., and B. J. Monro, Esq., in providing a yearly allowance to six unsuccessful candidates at the last election.

With very deep regret the Committee have to refer to the large numbers of losses by death amongst the friends and supporters of the Institution during the year. They would especially mention William Iceton, Esq., a member of the Committee for twenty-five years, and whose practical advice and suggestions were always much valued. J. C. Geiselbrecht, Esq., who very kindly and thoughtfully bequeathed a legacy to the charity; Mrs. Bischoffsheim, a most liberal donor; Miss Alice Rothschild, Walter Cobb, Esq., Robert Cooper, Esq., Thomas Cox, Esq., W. Heberden, Esq., C.B., S. Taprell Holland, Esq., Horace Quare, Esq., and S. T. Wright, Esq.

The Committee acknowledge the practical aid and sympathetic help afforded them in their work, and they very earnestly plead not only for a continuance of support, but for increased aid for this national (unsectarian) horticultural charity.

HARRY J. VEITCH,
Treasurer and Chairman of Committee.
GEO. J. INGRAM,
Secretary.

The Chairman proposed that the report and statement of accounts be received and adopted. He referred to an omission in the report, which he assumed was due to the modesty of the secretary, for there was no reference in it to Mr. Ingram. However, he was sure the secretary realised how much everyone felt the Fund owed to him. There was a sad touch in the report in the fact that of the forty-five candidates whose cases had been duly approved by the committee it was only possible to elect eighteen to the Fund, although a few others might receive help from the Victorian Era Fund or the Good Samaritan Fund. It was a matter of regret that they could not all be elected, for the present were most difficult times and especially to those in necessitous circumstances. However, it was encouraging to know that so much good work was being done and that the torch of those who carried on the work in previous years had been handed on to others, in many cases to members of the same family, of which members of the Sherwood and Monro families were examples. He emphasised the need of all the help and support possible for the Fund, as in the years to come there would be more applications for these pensions, as nowadays the majority of gardeners are unable to make provision for the future. He was pleased to know that the various auxiliaries were still lending valuable aid, and he was pleased to see amongst the company present Mr. Cox, representative of the Reading Auxiliary, and Mr. White, of the Worcester Auxiliary.

The adoption of the report and balance-sheet was seconded by Mr. McLeod, and, there being no further comment, the motion was carried by the unanimous vote of those present. The rest of the business was of a purely formal nature, with practically no discussion. Sir Harry Veitch was re-elected treasurer, and Mr. G. Ingram re-elected secretary for the thirty-third year in succession. The retiring members of the committee were also re-appointed, and Messrs. A. Bedford, J. Clayton, and T. H. Cook elected to fill vacancies. The auditors, arbitrators, and scrutineers of the ballot were also elected. At this stage of the proceedings Mr. J. F. McLeod proposed that a telegram should be sent to Sir Harry J. Veitch, expressing regret at his absence and hoping to see him present at the annual meeting on future occasions. It was also resolved to send a message to the treasurer, Mr. E. Sherwood, congratulating him on his approaching marriage and wishing him and his bride every happiness. It was also a happy thought to send the congratulations of the Institution to the President, His Royal Highness the Duke of York, on the occasion of his engagement. At this stage the proceedings were adjourned for the scrutineers of the ballot.

The successful eighteen candidates, with the number of votes accorded them, were as follow: Emily J. Denson, 4,774 votes; Albert Ballard, 4,733; Daniel Keen, 4,729; Charles Hoskins, 4,427; William Damerell, 3,726; Jane Child, 3,636; May F. West, 3,494; Mary E. Holmes, 3,491; Eliza North, 3,434; Henry Guyett, 3,372; Walter Johnstone, 3,355; Rose E. Bannister, 3,288; Robert J. Saunders, 3,028; John W. Jackson, 3,206; William J. Rowe, 3,120; William Clark, 3,090; Henry Aylward, 3,039; and Ann G. Blick, 2,945. In addition to the above, Elizabeth Salmon and Elizabeth A. Truran were placed on the funds by resolution without further election, and sums of £10 each, being one year's allowances, were given to seven unsuccessful candidates by Sir Harry J. Veitch, Major E. G. Monro, Mrs. Monro, and Messrs. Leonard Sutton, G. Monro, H. Morgan Veitch and A. J. Wood.

BRITISH CARNATION.

This Society, which is devoted to the interests of Perpetual-flowering Carnations, held its annual general meeting at the Hotel Belgravia, on Tuesday, January 16, when there was a good attendance of the members. The annual report of the committee shows that forty new members were enrolled during the year, and many of these were introduced by Mr. E. Bray, of Kimberley. Nine new varieties were registered during the year 1922; the awards made by the Floral Committee and a special report thereon will appear in due course. Reference was made to the interesting *Year Book* of 1921, which, however, was reduced in size, as a matter of economy. The exhibition held on March 21 was considered to be the best ever held by the Society, but, unfortunately, it was a failure financially. The Society received very generous assistance from a number of growers and salesmen who are especially interested in Carnations, and also from numerous private members, and these donations have enabled the committee to present a satisfactory financial statement. Receipts for the year show an income of £183 9s. 1d. from subscriptions, and of £136 from special donations and special prizes at the 1921 and 1922 exhibitions. Unfortunately the takings at the November show of 1921 and the March show, 1922, together with receipts for refreshments, came only to £36 8s. Advertisement receipts totalled £21 15s. 6d., the gross receipts being £433 11s. 3d., including a balance of £33 2s. 10d. brought forward from 1921. On the expenditure side the chief items are prizes for the November show, 1921, £88 3s. 6d.; prizes at the March show, 1922, £240; printing and stationery, £50; postages, £15 15s. 4d., which with smaller items, including an honorarium to Miss Bunyard of £17 7s. 3d., leaves a balance in favour of the Society of £14 9s. 7d. The report and statement of accounts were accepted, and it was agreed that Mr. Reginald Cory be asked to accept the position of president. Mr. A. J. Hall and Mr. Solway were elected to the committee in place of Capt. Caulfield and Mr. P. Smount. The other officers: Mr. J. S. Brunton, chairman; Mr. L. Cook, treasurer; and Mr. P. F. Bunyard, hon. secretary, were re-elected.

READING AND DISTRICT GARDENERS'.

The first fortnightly meeting of the spring session of this society was held on the 22nd ult. Mr. A. H. Fulker, the newly elected chairman, presided. The subject for discussion was "The Storing of Fruit," and this created a great amount of interest, as was shown by the attendance, numbering over one hundred. The lecturer was Mr. E. K. Jones, and he dealt with the subject under several headings, such as well-equipped structures for storing Apples, including sheds (which are often the best for keeping Apples) and cellars; temperatures, moisture, time of picking, and methods of storing. With regard to Pears, it was pointed out they would not keep well stored under similar conditions to Apples, for they required a warmer temperature, whilst Plums will not keep well, with the exception of two or three varieties, such as Coe's Golden Drop. First-class certificates were awarded to some splendid blooms of Heston White, Enfield White and Winter Cheer Chrysanthemums, staged by Mr. W. Gower, The Gardens, Calcot Grange, and to Mr. F. Alexander, The Gardens, Kennett's Lodge, Theale, for five varieties of Apples. Mr. C. J. Howlett Early exhibited twenty-two dishes of Apples and one of Pears to demonstrate the keeping qualities of various varieties stored under ordinary conditions.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, January 18.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, A. Kussons, J. Cypher, A. G. Ellwood, J. Evans, J. Howes, J. Jackson, A. Keeling, D. Losh Thorpe, D. McLeod, L. Sander, E. W. Thompson, J. Whitham, and H. Arthur (Secretary).

First-Class Certificates.

Cypripedium Nesta (*mirum* × *Lord Wolmer*). A fine flower of perfect shape, having a very dorsal sepal beautifully spotted and dotted with claret-red. From E. D. Bostvik, Esq.

Odontioda Pegasus (*Odm. amabile* × *Odta. Madeline*). From Mrs. Gratrix.

Cypripedium Imperator Excelsior (*Alcibiades* × *Pyramus*). The broad dorsal sepal is a reddish-brown colour with a white margin; the petals also are broad. From S. Gratrix, Esq.

Miltonioda Harwoodii Bolholt var. (*M. vexillaria Bellissima* × *C. Noetzliana*). The finest form of this lovely hybrid yet seen, the flowers being of good shape and of reddish-scarlet colour. From Capt. W. Horridge.

Cattleya Clotho var. Perfecta (*Enid* × *Trianae*), an evenly coloured flower with a richly coloured lip; *Brasso-Cattleya British Queen var. Excelsior*. This variety has sepals and petals of deep mauve, the lip being a richer mauve with a yellow throat. From Messrs. Cowan and Co.

Awards of Merit.

Cypripedium Florence Spencer (*Memoria Jerninghamiae* × *Actaeus langleyense*); *C. Olympus var. Rex*; *Odontoglossum Fabia var. Royal Beauty*. From S. Gratrix, Esq.

Lycaste Skinneri Robin; *Cypripedium Marie var. Jean Walker*. From Mrs. Bruce and Miss Wrigley.

Groups.

S. Gratrix, Esq., West Point (gr. Mr. J. Howes), staged a group for which a Gold Medal was awarded.

Mrs. Bruce and Miss Wrigley were awarded a Silver Medal for a group.

Messrs J. Cypher and Sons, Cheltenham, staged a miscellaneous group and were awarded a large Silver Medal.

ABERDEEN GARDENERS' AND FLORISTS'.

A large and representative gathering met at the annual dinner and social evening of the Aberdeen Gardeners' and Florists' Association in the Bon-Accord Hotel, Aberdeen, last week. Mr. William Adam, nurseryman, Fernielea Nurseries, Aberdeen, president of the association, was in the chair. After dinner the evening was devoted to a vocal and musical entertainment. Mr. David Ritchie, the retiring president, was presented with a silver cigarette case. Mr. Adam made the presentation, and in a eulogistic speech voiced the members' appreciation of the valuable services Mr. Ritchie had rendered the association.

ROYAL HORTICULTURAL.

NUARY 30.—The interior of the Royal Hor-
tural Hall presented a very spring-like
arance on the above date owing to the
nce of Crocuses, Irises, early Daffodils,
inths, Primroses and Polyanthuses. Orchids
not so extensively shown as on recent occa-
. Camellias proved interesting and Carna-
attracted considerable attention, as is
l. Vegetables were represented by a large
ay of Potatos from Reading, and Leeks
the R.H.S. gardens at Wisley.

must be many years since the Floral Com-
ee met without having a single plant or
er placed before it—as happened on this
sion. Mr. H. B. May, the chairman, and
ember for many years previous to holding
office, could not remember a meeting at
h the Floral Committee had no novelties to
dicate upon.

Orchid Committee.

esent: Sir Jeremiah Colman, Bart. (in the
), Messrs. J. O'Brien (hon. secretary),
. Lucas, Fred K. Sander, S. W. Flory,
H. White, H. T. Pitt, J. E. Shill, A.
ean, W. J. Kaye, E. R. Ashton, Stuart
Low, Frederick J. Hanbury, R. Brooman
te, T. Armstrong, J. Wilson Potter, and
eeters.

FIRST CLASS CERTIFICATE.

ypripedium Dulcis Lambeau's var. (*Curt-
nii* × *Alcibiades illustris*), from Mons.
IIN LAMBEAU, Avenue de l'Astronomie,
sels. A charming and very distinct
ipedium with a fine white dorsal sepal
lated at the margin, the lower two-thirds
g clear mauve colour in varying shades, the
er tone being on the upper part. Darker
le lines are also present on the mauve
nd, and the broad petals and lip are tinged
marked with chocolate purple.

AWARDS OF MERIT.

asso-Cattleya Helen (*B.-C. Digbyano-
neri* × *C. Fabia*), from G. W. BIRD, Esq.,
or House, West Wickham (gr., Mr. H.
en). One of the brightest and darkest of
so-Cattleyas, C. Warneri, introducing, as
l, a fine, dominant feature, The sepals
petals are bright violet-mauve, the broad,
ged lip ruby-purple with a yellow disc.

lontoglossum Llewellyn (*amabile* × *Georgius*
. This hybrid was first shown by H. T.
, Esq., who received a Certificate of
eciation for it in the seedling stage. As
n by Messrs. CHARLESWORTH AND CO., LTD.,
wards Heath, this fine, yellow-ground
ntoglossum proves to be one of the best
s class. The ground colour is Buttercup
w, and the inner two-thirds of the segments
eavily blotched with dark claret red.

CULTURAL COMMENDATIONS.

Messrs. ARMSTRONG AND BROWN, for a
d plant of their new Odontoglossum Strath-
(Apollo × Hylandianum) with a noble,
ched spike of forty-seven handsome flowers,
are white richly marked with dark mauve.
lip is white with purple blotches in front
ne yellow crest.

Mr. S. LYNE, Orchid grower to J. J.
TON, Esq., Claygate Lodge, Claygate, for a
rbly flowered plant of Odontoglossum
nt:ssimum Pintadeau with twenty-two
e, reddish-claret flowers of fine form, the
gins being white.

OTHER EXHIBITS.

. T. PITT, Esq., Rosslyn, Stamford Hill
Mr. Thurgood), showed Cypripedium J.M.
k var. Sandow (Beryl × Eurybiades), a fine
er with very dark, spotted dorsal sepal;
Etta Rosslyn var. (Chardwar × Mrs.
ards), a grand flower; C. Forest King, and
r fine Cypripediums.

essrs. CHARLESWORTH AND CO., LTD., staged
lection of fine hybrids, including their rich,
ve-purple Potinara Juliettae; Odontonia Dora
Bleuana × O. Doris), one of the finest of
r new hybrids, the flowers larger than in
Bleuana and beautifully marked with claret-
Odontoglossum Olympia, O. Wilckeanum
um and other Odontoglossums, together
choice Cypripediums

Messrs. STUART LOW AND CO., Jarvisbrook, showed a selection of Sophronitis crosses, including Sophro-Laelio-Cattleya Irene, with brightly coloured flowers; S.-L.-C. Leda, of fine shape and colour; Sophro-Cattleya Prince Shimadzu, with reddish-Apricot-yellow flowers and rose-purple lip; Laelio-Cattleya Rubella (Nella × St. Gothard), with two fine flowers, of rich violet mauve colour with a ruby-purple lip, and Odontoglossum Faustina Low's variety.

Messrs. SANDERS, St. Albans, staged a selection of good Cypripediums with a fine, typical form of Cattleya Enid and a plant of the white hybrid Coelogyne intermedia.

Messrs. ARMSTRONG AND BROWN showed the new Cymbidium Radiant (I'Ansoni Cravenianum × erythrostylum), a medium-sized hybrid of elegant habit, coloured yellow with claret lines and spotting on the lip.

J. J. BOLTON, Esq., showed a finely formed Sophro-Laelia Felicia of rosy-mauve colour with a fine purple lip.

Messrs. J. and A. MCBEAN, Cooksbridge, had a choice selection, including the large, blush-white Brasso-Cattleya Bianca; Cattleya Caroline (Enid × Percivaliana), a fine hybrid with the features of C. Percivaliana and the richly coloured markings on the lip, but a very much larger flower than C. Percivaliana; Odontoglossum Dodeham Prince of Orange, with twelve large flowers of a yellow ground blotched with purple.

Baron SCHRÖDER, The Dell Park, Englefield Green (gr., Mr. J. E. Shill), showed Cypripedium Eurybiades The Baron, one of the finest of the famous group raised at The Dell. The enormous white, dorsal sepal with pale Apple-green base is handsomely blotched with violet-purple.

Floral Committee.

Present: Messrs. H. B. May (in the chair), Chas. E. Pearson, W. J. Bean, E. A. Bowles, G. Harrow. G. Reuthe, Amos Perry, W. B. Cranfield, Reginald Cory, J. F. McLeod, W. Howe, J. Jennings, J. W. Barr, Donald Allan, H. R. Darlington, W. B. Gingell, Chas. E. Shea, D. B. Crane, M. C. Allwood, J. Hudson, and R C. Notcutt

GROUPS.

Carnations were again shown in very bright and fresh condition. While there were various vases of the Perpetual Malmaisons, it was the true Perpetual varieties that predominated. Messrs. ALLWOOD BROS. included a large vase of the brilliant Edward Allwood, and also had Jessie Allwood, Oceanic, Wivelsfield Claret and Vivid. The last-named is a very showy bloom, somewhat flatter in form than Mary Allwood and of much deeper colour (Silver Flora Medal).

Many vases of good blooms, chiefly of the sorts most favoured by market growers, were shown by Mr. C. ENGELMANN, who included Topsy and Marion Willson, of great merit (Silver Flora Medal).

Messrs. STUART LOW AND CO. gave special prominence to their new pink Eileen Low, Cherry Ripe and Sheila Greer, a decorative fancy of pale apricot and deep rose colour. Adjoining the Carnations they had a varied collection of such greenhouse plants as Acacia Baileyana, A. platyptera, Cyclamens and winter-flowering Begonias (Silver Banksian Medal).

Spring flowers were freely shown by various exhibitors. Messrs. CARTER AND CO. had a bright and attractive table of numerous bowls of Iris tingitana, Primula malacoides, Princess Mary and miniature Hyacinths in various colours, making a very artistic display (Silver Flora Medal).

A great variety of these early Hyacinths was again set up by Messrs. R. AND G. CUTHBERT in large batches of distinct colours, and they also had fine clumps of Helleborus maxima bearing very clean flowers (Silver Flora Medal).

Alpines, mostly displayed in informal rockeries, were seasonable reminders of these interesting and fascinating plants. Messrs. BAKERS, LTD. had a large quantity of Primula Wanda in full bloom, and also showed Soldanella alpina, Saxifraga burseriana Gloria and others.

Crocus species were again well displayed by Messrs. WALLACE AND CO., who also exhibited early Irises, Adonis and the pink flowered Schizostylis Mrs. Hegarty, in association with shapely Conifers (Silver Banksian Medal) Primula Juliae and P. Winteri were well shown by Messrs. R. TUCKER AND SONS, who also included Iris reticulata and the pale mauve flushed Arabis aubrietioides (Bronze Banksian Medal).

In an interesting little rock garden arranged by Messrs. WM. CUTBUSH AND SONS, there was an unusually good batch of the sweetly scented Iris sind-pers, and they also had various primulas, Crocus species and Bulbocodums (Silver Banksian Medal).

Several boxes of early Alpines were set up by Messrs. BARR AND SONS, with good clumps of Helleborus species and pots of double-flowered Daffodils.

Alpines in seasonable variety, Crocus species and other spring flowers were associated with dwarf shrubs and Conifers by Messrs. J. CHEAL AND SONS. Iris tingitana and I. reticulata of merit, and a bright batch of Anemone fulgens were the dominant features in an exhibit by Messrs. WATERER, SONS AND CRISP (Silver Flora Medal). Mr. G. REUTHE had boxes of Alpine plants, Christmas Roses, and other plants, and the Misses HOPKINS also showed a collection of spring flowers. Amongst the Alpines exhibited by Mr. M. PRICHARD, there was a dainty little plant of an unnamed double Primrose of rosy-purple colouring, faintly edged with white. Primula Juliae, Wilson's Blue Primrose, and Anemone blanda atrocoerulea were especially good in an exhibit by Messrs. CARTER PAGE AND CO.

Camellias, even better than a fortnight ago, were staged by Messrs. CHAPLIN BROS. It was the single and semi-double sorts of bright colour that attracted most attention, and of these Waltham Glory, Apollo, Jupiter and Mars were excellent (Silver Banksian Medal). The earliest out-door Rhododendron, R. nobleanum, and a plant of R. argenteum, were displayed by Messrs. R. GILL AND SONS, who also had a large batch of Primula Winteri. Adjoining these flowers was an exceedingly valuable set of water-colour paintings of British Fungi, by the late Mrs. Gill.

Greenhouse Azaleas and Prunus triloba were staged in quantity, and of good quality, by Messrs. L. R. RUSSELL, LTD. (Silver Banksian Medal), while Messrs. MOYSES STEVENS, LTD., showed greenhouse Azaleas with miniature Hyacinths.

Some conventional "Japanese Gardens" were contributed by MAJOR PAT A'BECKETT. These were in willow pattern bowls of pleasing pattern, but in addition to a sprinkling of Alpines such incongruities as Cocus Wedelliana and Gasterias were included (Bronze Banksian Medal).

In addition to many plants of his good strain of Polyanthus, Mr. G. W. MILLER showed pot plants of the salmon pink bedding Geranium Victory (Bronze Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (in the chair), W. Poupart, H. S. Rivers, E. A. Bunyard, A. H. Pearson, Owen Thomas, S. B. Dicks, J. Cheal, G. F. Tinley, Ed. Beckett, J. G. Weston, E. Neal, A. Metcalfe, F. Jordan, W Bates, W. H. Divers, W. Wilks, G. Reynolds, A. Bullock, F. Wilson, Fred. G. Treseder, W. F. Giles, P. D. Tuckett, and A. N. Rawls.

The Chairman announced that several varieties of Apples had already been planted at Wisley in connection with the trial of commercial varieties and the special committee dealing with that trial was anxious to plant more, and would welcome grafts or plants of varieties of promise for market purposes not already in general cultivation. Besides Apples, the Committee desired to plant Cherries and Plums that might be considered suitable.

The chief exhibit of importance before this Committee was a collection of Potatos, including seventy-six distinct varieties, shown by Messrs. SUTTON AND SONS, for which a Silver-Gilt Knightian Medal was awarded. The display was representative of all the best sorts in cultivation, including those immune to wart disease. The tubers generally were of outstanding quality, and they were shown very attractively in ornamental baskets. Messrs. Sutton's new main crop variety, Ben Cruachan, occupied a prominent position; it is stated to be a very prolific cropper. One of the best dishes was of the old Snowdrop variety, which many growers consider unsurpassed as an early sort and of great value for forcing. Witch Hill is a Potato of somewhat similar type and not sufficiently distinct from the older and well-tried variety. There was a notable dish of Arran Comrade and another of K. of K. Most conspicuous were the coloured varieties, which included such sorts as Black Prince, the flesh as well as the skin being very dark purple, Exhibition Red, Ranfurley Red, with a pink skin; and Aaron Victor, a purple coloured Potato. Golden Wonder, one of the best quality Potatos, was represented by a good dish, and there was another with a very distinct skin like a dark grey hide, named Village Blacksmith.

The Society showed varieties of Leeks from the trial at Wisley, which was recently inspected by the sub-committee. Two varieties were recommended to the Council as being worthy of First-Class Certificates, and one was recommended for an Award of Merit. It was stated that the very best variety was Royal Favourite, an old Leek raised by Mr. Owen Thomas and introduced to commerce by Messrs. Sutton and Sons; it received an Award of Merit in 1918. The Leeks had only received general field culture, the plants being merely dropped into holes and grown in the ordinary soil without trenches.

⁂ Owing to pressure upon our space, the report of the Annual Meeting and Dinner of the British Florists' Federation is held over until our next issue. *Eds.*

Obituary.

John Malcolm Stewart.—It is with regret that we have to record the death, at the Cottage Hospital, Castle-Douglas, on January 20, of Mr. John Malcolm Stewart, Mollance Gardens, Castle-Douglas. Mr. Stewart, who was a native of the Midlands of Scotland, was appointed gardener to J. Neilson, Esq., Mollance, some thirty years ago, and had become recognised as one of the best of Scottish gardeners, and as a specially expert grower of fruit and vegetables. He was for many years a successful exhibitor at the larger local shows, such as that of Dumfries, and latterly became a well-known exhibitor at the larger exhibitions, such as those of the Royal Caledonian Horticultural Society at Edinburgh, where he had many noteworthy successes, including the winning outright of the Thomson Challenge Cup for Grapes, the recognised championship of Scottish Grape-growing. He was the winner of numerous cups and other trophies. While Mr. Stewart was a most successful exhibitor, he by no means neglected the work of his employer's garden, which was kept in a high-class manner and was one of the finest in the South of Scotland in every department. Mr. Stewart, who was in the prime of life, had suffered for a considerable time from a serious malady, for which he underwent an operation some time ago, but he never recovered his wonted health, and the death of his wife about six weeks ago was a sore blow. He was latterly undergoing treatment at the Castle-Douglas Hospital, but all that medical skill could do was unavailing. His death is much mourned by all who knew him, as he was a general favourite and was very highly esteemed by all horticulturists and others who knew him. His funeral took place to Crossmichael Churchyard on January 24.

TRADE NOTES.

The Horticultural Committee of the British Empire Exhibition have formulated proposals which include the provision of a large and suitable site of nearly ten acres, immediately adjoining the new Great Central Railway Station, and between the station and the model stock farm, for exhibits of a horticultural nature. Provisional plans for the arrangement of these outdoor exhibits have been prepared by Mr. Edward White, of Messrs. Milner, Son and White, Consulting Landscape Gardeners to the Exhibition.

The large area adjoining the station will be available for flower gardens, formal gardens (with or without such features as statues, vases, fountains, pergolas, topiary work, garden houses, etc.), rock gardens and other ornamental gardens with special plant or shrub treatment.

In various prominent positions throughout the exhibition grounds opportunity will be given to nurserymen to co-operate with the Management in furnishing and maintaining beds and borders with shrubs and flowers, in accordance with plans to be prepared by Mr. White, and approved by the Management.

Sites for horticultural buildings, greenhouses, kiosks, groups of garden ornaments, etc., will be available on the main curved avenue in the horticultural section. The design of such buildings, kiosks, etc., will be subject to approval by the architects of the Exhibition.

A hall for horticultural and agricultural exhibits (machinery, seeds, fertilisers, and sundries), including small spaces for offices for firms whose exhibits are only or mainly outdoors, will be built on the avenue dividing the group of gardens from the model farm. There will also be a garden exhibitors' clubroom, for outdoor exhibitors who do not desire a separate office, the charge for membership, including use of private locker and writing-desk, being £20 for the period of the exhibition.

Applications for space from trade exhibitors will be considered in the light of the suitability and attractiveness of the proposed exhibits, and in view of the period of the exhibition (end of April until end of October, 1924), preference will be given to exhibits which will be maintained in an attractive form for the longest time possible. The charge per foot frontage varies with the different sections; particulars may be obtained from the Secretary of the Horticultural Section, Mr. W. Watson, 16, Grosvenor Gardens, London, S.W.1.

A conference was held at the offices of the Chamber of Horticulture, on the 17th inst., to consider arrangements for a British collective display at the Ghent Quinquennial Exhibition.

The Chairman, who is organising the British Section, stated that he had just returned from Ghent, and he had ascertained that other countries, especially France and Belgium, were making the greatest efforts to produce magnificent displays, and that much enthusiasm was being shown by all. He said that, if it was desired to maintain the prestige of British horticulture, a great deal of hard work and enthusiasm must be put into the scheme to make a display worthy of the horticultural industry, otherwise other countries would beat us easily.

As regards transport arrangements, exhibits may be sent either via Dover and Ostend or direct by boat from London to Ghent. The Belgian authorities had undertaken to convey all goods free of charge from Ostend and to do all the carting at Ghent. The exhibition authorities were also prepared to supply a certain number of vases and to give all possible assistance in arranging the soil in banks and beds as desired by the various exhibitors. All exhibits will need to be staged by 8 a.m. on April 13. Mr. H. J. Jolis, of Messrs. Anthos and Co., has kindly undertaken to superintend the arrangement of the whole of the collective exhibit, and Mr. G. Arluison stated that Messrs. Geo. Monro, Ltd., could be relied on to again assist in the collection, packing and despatch of all goods in a similar manner to that for the Antwerp Exhibition in 1920.

The Chairman stated that the question of funds to cover cost of transport, labour and hire of sundries must be considered. Mr. Ascroft undertook to explain the position to the Council of the R.H.S. and to convey the request of the conference that a certain sum should be guaranteed by them. It was decided to inform the Council of the Chamber that a request had been forwarded, and to ask the Council to take what action it thought fit. It was pointed out that as the traders were willing to provide the material, time and labour, amateurs would probably be willing to assist financially.

Mr. Brunton stated that individual exhibitors should inform him as soon as possible what space they thought they would require, and he would undertake to see that they obtained the same. Also this would apply to any beds, banks or special erections that may be necessary.

ANSWERS TO CORRESPONDENTS.

A Gardener's Notice: *Anxious.* It is usual for a gardener to give and receive a month's notice on terminating an engagement, but the custom varies in different parts of the country. Your best plan is to consult a local solicitor.

British Gardeners' Association: This association has been amalgamated with the National Union of Agricultural Workers. The address of the secretary is 72, Acton Street, W.

Camellias Failing to Flower: *Cheshire.* The most common causes of Camellias dropping their flower buds are (1) an excessively dry atmosphere, (2) dryness at the roots, the latter being the most frequent reason. Drought generally results in the plants making a very hard ball of roots, which, once dry, is very difficult to moisten again. The only remedy is to stand the pots in a vessel of water for an hour or so and soak the ball thoroughly. Camellias usually set too many buds, which, if not thinned, usually results in bud dropping. Artificial manures should be applied with caution, for if the plants are at all dry at the root, strong fertilisers are sure to cause injury. Your details regarding the general cultivation of the plants seem to be correct.

Commercial Propagation of Herbaceous and Alpine Plants: *W. J. P.* We have no knowledge of a book dealing specifically with the propagation of herbaceous and alpine plants from a commercial point of view, but the matter is referred to in *Commercial Gardening*, which, however, we believe, is now only obtainable through second-hand booksellers.

Names of Fruit: *H. G. S., Llandudno.* Apparently a very large specimen of Spitzenberg.—*R. H. J.* 1, Lane's Prince Albert; 2, Stirling Castle; 3, French Crab.—*Dr. H. E. D.* Vicar of Winkfield.—*J. I. G.* 1, Alfriston; 2, Swedish Reinette.—*J. E. A.* 1, Fearn's Pippin; 2, Gascoyne's Scarlet.—*J.* 1, Lane's Prince Albert; 2, Annie Elizabeth; 3, Golden Noble.—*W. G. B.* Dredge's Fame.—*Hurst.* 1 and 2, Blenheim Pippin; 3, Allington.

Names of Plants.—*G. J. W.* 1, Pseudotsuga Douglasii var. glauca; 2 Abies lasiocarpa; 3, Pseudotsuga Douglasii; 4, Picea orientalis; 5, Pinus strobus; 6, Sequoia sempervirens; 7, Pinus parviflora; 8, P. Banksiana; 9, Abies nobilis. *A. G.* The flowers submitted are those of the double Roman Polyanthus Narcissus, or Narcissus Tazetta. An old bookname for it is Double Narcissus of Constantinople. It is inclined sometimes to come single. The plant is not grown much now, as it does not bloom freely.

Primula obconica Leaves Diseased: *J. A.* The leaves show that the trouble is due to an attack of the fungus Botrytis. Thorough cleanliness in regard to cultivation and spraying in the early stages with sulphate of potassium will probably reduce or check the trouble.

Communications Received.—J. F. D.—G. J. W.—C. F. G.—W. B.—J. C.—C. S. & Co.—A. S. G.—A. G.—C. of H.—H. A. F. M.—Dr. A. R.—G. C.

THE Gardeners' Chronicle

No. 1885.—*SATURDAY, FEB.* 10, 1923.

CONTENTS.

Alpine garden, the— Globularias 75
Box Hill, the future of .. 76
British Empire exhibition, 1924 82
Bulb garden, the— 73
Cardinal's flower, the .. 75
Chelsea Show in 1924 .. 72
Dartmoor, afforestation of 72
Flower show, revival of an old 71
Fruit garden, market .. 80
"Gardeners' Chronicle" seventy-five years ago 73
Gardens, prizes for London 72
"Geo. Munro, Ltd.," Concert 71
Ghent quinquennial exhibition 72
Grape growing under difficulties 81
January flowers .. 76
Kitchen garden— Asparagus beds .. 80
Lilies in 1922 78
Lilies, some easily grown 79
Loudon, Jane 77
Obituary— John Hay 84
Page, Mr. W. H. .. 72
Rain Gauges, the earliest 72
Scotland, N.E., conditions in 72
Societies— British Florists' Federation 83
British Mycological .. 82
National Chrysanthemum 83
National Hardy Plant 83
Reading and District Gardeners' .. 83
Royal Horticultural .. 71
Newcastle Horticultural 84
Thladiantha dubia .. 82
Trade Notes 84
Ward's, Mr. F. Kingdon seventh expedition in Asia 71, 80
Week's work, the .. 74
Wiseman, the late Mr. Wm. 72

ILLUSTRATIONS.

Crocus Sieberi 73
Globularia incanescens 75
Grapes in a mixed vinery, a fine crop of 81
Hay, John, portrait of the late 84
L. Duchartrei 77; Lilium Davidii, 78; L. Thayerae, 79
Page, Mr. W. H., portrait of 72

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.2°.

Actual Temperature :—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 7, 10 a.m. Bar. 29.4, temp., 44°. Weather—Raining.

Royal Horticultural Society. If increase of membership is any criterion the Royal Horticultural Society is enjoying a greater measure of prosperity than ever before, for according to the report of the Council for 1922, which will be presented at the one hundred and nineteenth Annual General Meeting, to be held on Tuesday, the 13th inst., the increase in the membership during 1922 was 1,648, exceeding that of the previous year by more than four hundred. The total membership on November 14, 1922, reached the remarkable figure of 18,142, that of the previous year on the same date being 16,494. That the Society appeals to a wider public than ever may also be gathered from the fact that this is net increase after deducting losses by resignations and deaths totalling 992; it is to be regretted that of this number deaths have accounted for 144. With such a splendid membership it is not surprising to find that the revenue from subscriptions reaches the large sum of £25,637 16s. 6d, which, together with entrance fees, gave the Society a gross income from this source of £26,239. According to the balance-sheet the Society has invested funds of over £45,000, a general reserve fund account of £15,000, and over £4,000 in cash at the bank, so that the finances are in a very sound condition. The Society is undoubtedly experiencing its greatest era of prosperity, and it might be opportune for the Council to consider whether the time is not ripe to take advantage of the flowing tide and build a new Hall that would better meet the needs of the Society than the present one, for the fortnightly meetings have grown so popular that the amount of space in the Hall is not sufficient to prevent crowding and discomfort to those who attend, whilst the provision of Committee-rooms is totally inadequate, apart from the need for better facilities for the official staff. The acquisition by the Society of the *Botanical Magazine* has necessitated the special staff dealing with this work taking over the Committee-room that was for so long the meeting place of the Floral Committee, and the less convenient lecture-room has to be utilised by this Committee instead. The R.H.S. should be the unit linking together all the varied interests of horticulture, and should make provision for the special floricultural societies and other associations of a gardening nature to have meeting rooms at their disposal, especially on the occasions of the fortnightly meetings, when Vincent Square is the Mecca of the horticultural fraternity. The innovation of the election of three entirely new members of the Council, Mr. E. A. Bunyard, the Hon. H. D. McLaren, and Sir William Lawrence, Bart., will, we believe, meet with the general approval of the Fellows; we think this is a wise step on the part of the Council and believe it will be in the best interests of the Society. The meetings and exhibitions of the Society have been very successful during the past year; but everyone will be surprised to know that there was a loss of more than £1,300 on the Autumn Show in Holland Park Hall. The Chelsea Show was, as usual, a great success, and resulted in a profit of nearly £1,000, although, of course, it is only to be expected that, as the membership increases, the receipts from these special shows are bound to decrease proportionately, as free admittance to these fashionable functions is a great incentive to many to become Fellows. Whilst we may agree that a high standard of excellence was reached at the shows last year, it is open to question whether "the standard reached by exhibitors has never been higher nor the exhibits themselves more effectively staged." A sympathetic reference is made in the report to the death of the superintendent of the Wisley Gardens, Mr. S. T. Wright, and we are sure that all who had knowledge of, or dealings with, Mr. Wright will appreciate the splendid testimonial paid to him by the Council in their statement that "for years the Society's shows owed their smooth working to his ready help." We notice that the Veitch Memorial Trust, founded in 1870 in memory of James Veitch, the founder of the famous Chelsea firm, has been transferred by the Trustees to the Council of the R.H.S., and the award of the medal last year together with a prize of £50, both to Mr. W. J. Bean, for his work on Trees and Shrubs, and to Mr. Lloyd Praeger for his work on Sedums and his proposed work on Sempervivums, will meet with general approval. The new Victoria Medallists of Honour in the places of five holders who have died during the year are Mr. A. C. Bartholomew, Mr. C. G. A. Nix, Mr. R. W. Wallace, Mr. J. Lowe, and Mr. A. K. Bulley.

We congratulate Mr. H. J. Jones on the award of the Lawrence Medal for his magnificent group of Chrysanthemums staged last autumn.

The special portion of the report dealing with Wisley Gardens is interesting, and shows that increased numbers of Fellows have visited the Gardens since the institution of the omnibus service between Kingston and North Street, Guildford. As stated on p. 334, Vol. lxii., an Assistant Director has been appointed at Wisley, but the office of Garden Superintendent is apparently still vacant. Gardeners would be pleased to see the office of Superintendent maintained and they consider that a qualified gardener should have a due share in the carrying out of the more practical work of the gardens. Apparently the negotiations with the National Rose Society for the inclusion of a trial Rose garden at Wisley have fallen through, and the Council has decided to carry out a plan of testing Roses at Wisley by the R.H.S. alone. The new Rose trial ground will adjoin that set apart for the testing of fruits for commercial purposes. These schemes have necessitated determining the tenancy of the Deers Farm, and there will be sufficient area available to provide a playing field for the students and staff, as well as to extend the green manuring experiments. A certain amount of experimental work has been conducted during the past year, and it is hoped to be possible soon to draw some general conclusion from the green manuring experiments which have been conducted for three years. The *Book of Arrangements*, in which the report and balance-sheet are embodied, has grown to a considerable size, and includes a list of the new Fellows elected in 1922. For the first time the attendances of the members of the various Committees are recorded, which we think will prove an incentive to a more regular attendance on the part of those whose record is small.

Mr. F. Kingdon Ward.—The *Times* correspondent in India states that Mr. F. Kingdon Ward was due to leave for England on Tuesday last on a year's holiday, and that he will thereafter return to the East to continue his exploration. Interviewed at Rangoon, Mr. Ward stated that he had traversed much unknown country between the Me-kong and the Irrawaddy, traversing passes—as already stated in his narrative published in this journal—beyond Mu-li, between mountains 20,000 feet to 25,000 feet high. On this particular expedition Mr. Ward has made a complete traverse east to west of that extraordinary district through which the waters of the Tibetan plateau escape. In a strip of mountainous country not more than seventy miles wide, four of the greatest rivers of Asia—the Yangtse, Me-kong, Salween and Irrawaddy flow, running parallel to each other for one hundred miles and separated only by rock partitions, which attain altitudes of 25,000 feet. On p. 80 in the present issue, Mr. Ward gives an account of his explorations in the vicinity of Yung-ning.

Revival of an Old Flower Show.—Rockingham Flower Show, which was instituted so far back as 1851, had a very successful career until, like many other horticultural exhibitions, the great war caused it to be abandoned, the last show being held in 1913. The exhibition was always held in the beautiful grounds of Rockingham Castle, and was an annual event of great importance in the district, attracting many thousands of visitors from the counties of Northampton and Leicester. Many of them visited the show to enjoy the magnificent scenery from the Castle walls of the Welland Valley and the Leicestershire hills. The present owner of Rockingham Castle, Rev. Wentworth Watson, is taking the keenest interest in the revival of the flower show, and the new committee has been fortunate in securing the services of Mr. Leeson as secretary. The date of the exhibition for this year is fixed for July 26.

"**Geo. Monro, Ltd.,**" **Concert.**—The twenty-fourth annual Bohemian concert, held under the auspices of the "Geo. Monro, Ltd.," Concert Committee, will be held at the Queen's Hall, Langham Place, W., on Thursday, February 15. An organ recital is arranged for 7.15 p.m., and the concert proper commences at 7.30 p.m. Tickets may be obtained at the Queen's Hall box office or of Mr. G. Coleman, hon sec., 4, Tavistock Street, Covent Garden, W.C.

Conditions in North-East Scotland.—Remarkable illustrations of the abnormal weather conditions prevailing are apparent everywhere in North-Eastern Scotland. The delightfully sunny days of the past weeks have been in direct contrast to the usual cold and inhospitable climate of the district at this period of the year. Many flowers could be gathered in the open in the early days of February, including Violets (in the shelter of a sunny wall), Snowdrops, Hellebores (Christmas Roses), Yellow Jessamine, double and single Hepaticas, Primroses, Polyanthuses, Wallflowers, Violas, and common Daisies. And beyond that there may be seen fat buds of autumn Roses still hanging fresh and red on the bushes. At this period the local rivers should be carrying to the sea "snawbree," but instead they are sparkling in the sun as if it were midsummer or autumn. The hills, instead of being covered as usual with a mantle of white, stand out like deep-blue-tinted sentinels.

The Chelsea Show in 1924.—In view of Mr. Wallace's interesting letter on p. 82, suggesting the holding of the Royal Horticultural Society's Spring Exhibition at the British Empire Exhibition in 1924, the following letter sent to exhibitors at the Chelsea Shows, by the Secretary of the Royal Horticultural Society, will show the opinion of the Council:—

Dear Sir,—I am desired by the President and Council to ask you to be so good as to attend, or to send a representative to attend a special meeting of Chelsea exhibitors in the Lecture-room on Tuesday, February 13, at 5 p.m. The Council of the Royal Horticultural Society, having been approached by the authorities of the British Empire Exhibition, with a request that the Chelsea Show of 1924 should be transferred to Wembley, is of opinion that this would not be in the interests either of the Fellows of the Society or of the exhibitors. If you are unable to attend the meeting, would you be so good as to let me know your views on the matter not later than Saturday, February 10th. *W. R. Dykes, Secretary, Royal Horticultural Society.*

Ghent Quinquennial Exhibition.—The members of the Société Royale d'Agriculture et de Botanique de Gand, at their general meeting held recently, were informed of the progress being made by the Organising Committee of the Floralies, which will be opened on April 14, at the Palais des Fêtes, at Ghent, and approved the following scale of entrance charges:—Saturday, April 14, 25 fr.; Sunday, April 15, 12.50 fr.; Monday, April 16, 12.50 fr.; Tuesday, April 17, 6.25 fr.; Wednesday, April 18, 6.25 fr.; Thursday, April 19, 6.25 fr.; Friday, April 20, 4 fr; Saturday, April 21, 4 fr.; and Sunday, April 22, 2.50 fr.; these prices include entertainment tax. It was also decided that foreign societies having their headquarters or offices in Ghent and in the suburbs, registered before March 15, and taking not fewer than 30 tickets, should be permitted to purchase tickets at the following rates:—Sunday, April 15, 6.75 fr.; Monday, April 16, 6.75 fr.; Tuesday, April 17, 3.75 fr.; Wednesday, April 18, 3.75 fr.; Thursday, April 19, 3.75 fr.; Friday, April 20, 2.50 fr.; Saturday, April 21, 2.50 fr.; Sunday, April 22, 2.50 fr.; tax included. Foreign excursionists will have, in addition to the privilege of visiting the Floralies, facilities for seeing free of charge, during their stay in Ghent, the communal monuments. The committee of the Floralies will present them with permits to view the Château des Comtes, the Cloth Market (Belfry), the Cathedral of St. Bavon, the Fine Arts Museum, the Archaeological Museum, the Botanic Garden, the ruins of the Abbey of St. Bavon, etc. As during previous Floralies, free tickets will be given on Monday, Tuesday, and Wednesday, April 16, 17, and 18, between the hours of 7 and 9 a.m., to all children attending the State and free schools of the town and its suburbs, accompanied by their teachers. Children from the orphanages and soldiers mutilated in the war will also be admitted free at the same hours and on the same days. Other important decisions and arrangements will form the subject of a future notice.

Mr. W. H. Page.—The elder of several brothers engaged in horticultural pursuits Mr. W. H. Page, of the Tangley Nurseries, Oak Avenue, Hampton, is one of the best known of men engaged in the production of flowers for Covent Garden Market. He has given attention chiefly to the cultivation of Liliums and Carnations, both of which he grows on a large scale. He is also interested in Chrysanthemums and in hardy fruits. Although his hair is white, he is singularly youthful in manner and in spirit, and takes up many duties outside his business which would deter many a younger man. For many years he has been a member of the Royal Horticultural Society's Floral Committee, and ever since its inception he has been a staunch supporter of the British Carnation Society, formerly the Perpetual Flowering Carnation Society. In this Society his knowledge of the habit and character of Carnations has been of immense service and fully justified the position of chairman of the Floral Committee, which he has occupied for so many years to the great advantage of the industry. Mr. Page was also one of the foundation members of the British Florists' Federation and a member of the Committee which dealt with the importation of Lily bulbs from Japan during the war period, and it is because of his services rendered in these ways to the flower trade that he has been elected president of the British Florists' Federation for the current year. Mr. Page combines a charming personality with excellent business capacity and a wide knowledge of flowers and plants, and these qualities have brought him hosts of friends.

MR. W. H. PAGE.

PRESIDENT OF THE BRITISH FLORISTS' FEDERATION.

Afforestation of Dartmoor.—A brief account is given by Mr. W. J. Hale, M.C., in the *Quarterly Journal of Forestry*, July, 1922, of the progress which has been made with the scheme adopted by the Duchy of Cornwall for the afforestation of a large area of Dartmoor. The forest of Dartmoor, a heather-clad, treeless, wind-swept tract, covers about fifty thousand acres. It has a loamy soil, and receives eighty inches of rain annually. Of this area five thousand acres are to be afforested. The work is to proceed at the rate of two hundred and fifty acres per annum for the next twenty years. Soft woods, Sitka Spruce, common Spruce, Douglas Fir, and Larch, are being planted, with shelter belts of Beech and Sycamore. Spruce will occupy the larger part, with Douglas Fir and Larch on the lower, more sheltered slopes; Picea sitchensis, the Sitka Spruce thrives in the district better than Picea excelsa, the common Spruce.

The Surveyors' Institution.—The next ordinary general meeting of the Surveyors' Institution will be held in the Lecture Hall of the Institution, on Monday, February 12, when a paper will be read by Mr. C. P. Sanger (Barrister-at-law), entitled "The Law of Property Act, 1922." The chair will be taken at 8 p.m.

Prizes for London Gardens.—In the hope of creating a brighter London by means of beautiful and attractive gardens, the *Daily Telegraph* has formulated a prize scheme in which it will offer over £200 in cash prizes. The competition will be open to private residents within the area administered by the London County Council, but no garden exceeding three hundred and fifty square yards in area may be entered for competition. Judges of acknowledged ability will be appointed, and in awarding the prizes they will take into consideration the following points:—(a) order and neatness, 10 points; (b) design, arrangement, and general effect, 10 points; (c) noteworthy plants, 8 points; (d) features of special excellence, 6 points. The competitors must be private residents in London and of British nationality. They must also be the occupiers of the gardens entered, and not professional gardeners, or connected with the business of horticulture. Those who propose to compete for the valuable prizes must enter on a special form provided for the purpose. Such forms may be obtained on application to the Gardening Editor, *Daily Telegraph*, from whom may also be obtained on application an interesting and illustrated booklet dealing with old London gardens, and giving suggestions for planting and maintaining a London garden in summer time. It should be added that the gardens will be grouped in four classes. Class 1 will be confined to gardens on the ground level with an area not exceeding three hundred and fifty square yards, but with no restrictions as regards making or management; Class 2, gardens of similar area to Class 1, but managed or maintained without professional help or paid labour; Class 3, gardens on the ground level in the congested areas of E. and S.E. London, and restricted to houses rated under £30 per annum; and Class 4, roof gardens or gardens arranged on a leaden flat, with no limit to extent or restrictions as to making or arrangement.

The late Mr. Wm. Wiseman.—The body of the late Mr. Wm. Wiseman, of Forres, whose death was recorded in *Gard. Chron.*, November 4, 1922, was exhumed after rumours in the district as to the nature and circumstances of his decease, but the Chief Clerk of the Crown Office states that the inquiry has disclosed no grounds for criminal proceedings. Apart from this, the Chief Clerk gives no further information, but states in a letter to the *Forres Gazette* that the Crown Counsel is at a loss to understand how so much information regarding an inquiry highly confidential in its nature found its way in the columns of the Press. It will be remembered that Mr. Wiseman was compelled, owing to illness, to sleep in one of the buildings of his nursery, and that he was found dead in bed. It is not the custom in Scotland to hold coroners' inquests, but as the *Elgin Courant and Courier* points out in its issue of the 2nd inst., had there been such a court in Scotland the so-called "Forres mystery" would not long have remained mysterious.

The Earliest Rain Gauges.—According to the *Meteorological Magazine* for January, the use of rain gauges may be traced back to 1442, when, according to the ancient records of Korea, bronze instruments for recording rain were constructed. The earliest scientific instrument in this country for indicating the rainfall was devised by Sir Christopher Wren about 1662, and was fitted with a tipping bucket, which served as a record. Previously, no special instrument for the local measurement of rainall had been produced, and the only available evidence was dependent on direct inference, such, for example, as the flood marks of valleys. The first records of rainfall were made in Paris by Perrault in 1668, and the first in this country by Townley nine years later. Townley's gauge consisted of a funnel of 12 inches diameter, soldered to a leaden pipe through which the water flowed into convenient vessels, and was weighed. Great care was taken to ensure that the funnel was firmly fixed, and that no rain would trickle down the outside of the funnel into the receiver. The next gauge of which details are available was designed by Hooke and used at Gresham College in 1695. It consisted of a glass funnel of 11.4 inches diameter, mounted on a wooden frame, and leading into a large flask capable of holding about two gallons and being provided with a long and narrow neck to minimise evaporation. With this apparatus also the collected water was weighed. Two years later Derham, at Upminster, employed a gauge which was similar in principle to Townley's, and similarly mounted. As early as 1722 a close approach was made to the modern principle by Horsley in Northumberland, who used a large funnel 30 inches in diameter and 10 inches deep, while a similar apparatus was employed by Abbot Didacus de Revillas at Rome in 1742.

Appointments for the Ensuing Week.—Monday, February 12: United Horticultural Benefit and Provident Society's meeting; Bath Gardeners' Society's meeting. Tuesday, February 13, Royal Hort. Soc. Committee meeting; Jersey Gardeners' Society's meeting. Wednesday, February 14: Sheffield Chrysanthemum Society's meeting. Thursday, February 15: Manchester and North of England Orchid Society's meeting. Friday, February 16: Eastbourne Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Advertisement Duty.*—We perceive that a portion of the daily Press has at last declared itself against the Advertisement Duty levied on newspapers, and we do think that if Government can consent to its entire or partial abolition, they will confer a greater boon on the industrious classes than men in a high sphere are likely to be aware of. We speak on this occasion more especially for gardeners who are out of place, and who are in a manner compelled by the necessity of their position to lay out their money on advertisements. Unless they make it known to the public that they are seeking for situations, they have little chance of procuring them—and no possible way is open to them except by way of advertisement. It is a tax they must pay—or starve. To the rich the sum of eighteen-pence, which is the amount levied by Government upon each advertisement, may appear too small a matter to be of importance to the payer. *De minimis non curat lex*; and this duty may seem to rank among the *minima*. But it is not so; it is quite the reverse. Eighteen-pence is three-quarters of a day's labour by a gardener out of place, even if he is so fortunate as to procure temporary employment; and it is no trifling matter to be obliged to work hard for nine hours and a half in order to earn the right of saying: "I, Thomas Barnes, am thirty years old, have an excellent character, can give the best references, and desire to find employment as a gardener." For permission to utter in public these two dozen words, it is necessary to pay eighteen-pence, or three farthings per word. In addition to which, another eighteen-pence is paid for the printing, paper, and publication expenses attending the advertisement; so that in reality one-fourth of a week's wages is absorbed by it. *Gard. Chron., Feb.* 5. 1848.

Publications Received.—*Practical Plant Biochemistry.* By Muriel Wheldale Onslow. 2nd Edition. Cambridge University Press, Fetter Lane, E.C.4. Price 12s. 6d. *The Romance of the Apothecaries' Garden at Chelsea.* By F. D. Drewitt. Chapman and Dodd, Ltd., 66, Gt. Queen Street, W.C. Price 7s. 6d. net. *Report by a Committee of the Land Union, with Suggestions.* The Land Union, 15, Lower Grosvenor Place, S.W.1.

THE BULB GARDEN.

CRINUM.

This stately family of plants belongs to the Natural Order Amaryllidaceae and the name is derived from the Greek Krinon, meaning a Lily.

The Crinum is surpassed in beauty by no member of the Lily tribe, save possibly Lilium giganteum. The bulbs are large and the flowers, which are white or pink, push up from the side of the bulb. The leaves are very attractive—in several species they are a yard long and require some protection from the wind, as upon their perfect ripening depends to a great extent the production of flowers.

The blooms in the white variety of C. Powellii are very similar to those of Lilium candidum, but larger and sweetly scented. I have no trouble in cultivating the white and the pink varieties of C. Powellii and C. capense, and to amateurs like myself I strongly recommend a trial of these three Crinums.

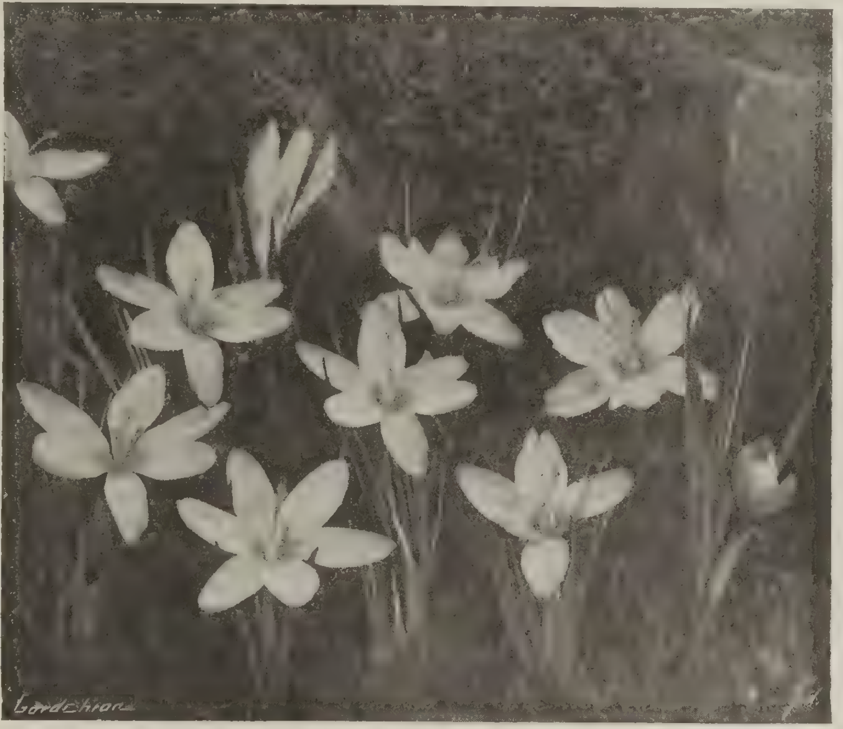

Fig. 34.—crocus sieberi.

The present time is suitable for planting. If possible select ground without a clay subsoil, and plant at the foot of a south wall. The best plan, if the ground is heavy, is to remove it to a depth of 2 feet or 3 feet and put in a few inches of broken brick or stones for drainage, then fill the trench with a mixture of loam and well-rotted manure, as the Crinum is a gross feeder and sends its roots far and wide.

It appreciates good cultivation, and during its growing period will benefit by a generous supply of liquid manure. If the varieties I have mentioned are planted with the top of the bulb about 6 inches below the soil they will prove to be perfectly hardy, at any rate in the South, and with a little care will flourish farther north.

Crinum capense was introduced from the Cape in 1752; it reaches a height of about 2 feet and flowers in June. C. Powellii is a hybrid flowering in August and much larger in all its parts. A clay soil is not suitable and, as the plants require a good supply of moisture, a porous sub-soil should be provided. The bulbs may be taken up when the foliage is dead and preserved in sand until the time for replanting arrives. *T. D. T.*

TIGRIDIA PAVONIA.

Tigridia Pavonia was introduced from Mexico in 1796. There are several varieties and the flowers are gorgeous and striking. As the bulbs may be planted in March notice is directed to the plant, for in spite of the fact that the flower lasts but a portion of the day, each bloom is rapidly followed by others in a succession from the spathe and but little break in flowering is noticed.

CROCUS SIEBERI.

The charming Crocus Sieberi—referred to by Mr. Arnott on p. 63—is one of the first to open its welcome flowers, a bed of it having been in bloom since the end of January. This, however, is partly due to the very mild weather that we have experienced recently, but it is no uncommon thing to find a few of its globular, pale-purple flowers fully out soon after the middle of January on a sheltered sunny border. This species is, in conjunction with its rich purple flowers, set off by scarlet orange stigmata and unbearded orange throat, readily distinguished by the broad green leaves, which have a broad, light band running down the centre.

C. Sieberi is abundant on the mountains of Greece, the Morea, Euboea, Crete, and the Cyclades, generally at elevations of from 1,500 to 7,500 feet. The type (see Fig. 34), which has self-coloured flowers, comes from the mainland of Greece, and has been many years in cultivation. On the islands is found a beautifully variegated form—C. Sieberi var. versicolor, in which the outer segments are variously striped and flushed with rich purple and white, which blend into the bright orange of the throat. This variety, according to Maw, in his *Monograph of the Crocus*, was introduced by Mr. Elwes from the White Mountains of Canea, in Crete. It is still very rare in cultivation.

The type is of easy cultivation in any light soil, but is most at home on a sunny south border or sunny pocket in the rock garden, where it readily increases. It is perhaps seen at its best when grown in pans in the alpine house, where its delicate flowers are not exposed to the vagaries of the weather. *W. I.*

MUSCARI HELDREICHII.

Muscari Heldreichii, a species from Greece, has been described as having larger flowers than those of M. botryoides. Its spike, or raceme, is inferior to that of M. botryoides, as it is not so well formed and is shorter. The flowers are of a charming sky-blue, and are distinctly marked with a white ring round the mouth. *S. Arnott.*

The Week's Work.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Orchard Trees.—Trees in old orchards should be given a little attention. The pruning of long-established standard trees need only consist in removing branches that cross and some where they are too close together. Trees that have yielded only small fruits in recent years may be headed back to increase their vigour. Where change of variety is desired the branches headed back may be crown-grafted with other sorts. Attention should be paid to the roots of orchard trees. Should they be buried very deeply by soil additions, a portion of the earth should be moved from about the bole of the tree. The advantage of arable land over grass land for fruit trees is now freely recognised. In the case of young trees grass growing near their roots is very detrimental to them. It is contended by some that the grass roots give off substances inimical to the roots of the fruit trees; be that as it may, it has been proved beyond doubt that young trees will not thrive where strong pasture covers their roots. Air and sunlight have a beneficial influence on roots, and where grass has to remain, a circle of at least six feet in diameter should be kept clear of the grass. In the case of trees of considerable girth it is not so important, but by keeping the soil at the base of the tree free of turf, danger from insect pests will be lessened. Trees which have become stunted in growth through over-cropping should be well mulched with rich manure. Supports of newly planted trees should be examined and ties renewed where necessary.

Labelling.—All fruit trees should, if possible, have a metal raised or embossed label. Probably the most serviceable label is that made from sheet lead; these labels may be cut any length or shape, and an alphabetical set of metal dies is all that is required. The letters may be rubbed with or filled in with white paint and the remainder of the label painted green.

General Remarks.—Material used for preventing injury to the bark of trees should be of a nature least likely to harbour insects; for this reason, medicated shreds are preferable for wall trees. In nailing, sufficient space should be allowed for the shoots to swell; shreds not needing renewing should be inspected for the presence of pests. The heading back of stocks for grafting or regrafting should no longer be delayed, as the sap this season will rise early and rapidly. Should the stocks be growing in an exposed position it may be necessary, where clay is used over the union of stock and scion, to bind Moss over the clay to prevent it drying out. Protection boards which fit over wall trees should be taken from storage; they can be repaired or painted in bad weather. Nets should be overhauled and labelled, according to suitability for special purposes, ready for immediate use when the blossoms show signs of expanding.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Lobelia tenuior.—If not already sown, seed of this fine Lobelia should be inserted. With its upright habit and beautiful blue flowers, this Lobelia is very useful for decorative purposes, remaining in good condition for a long time in the conservatory The seedlings should be pricked off four or five in a pot, and very useful plants may be grown in 48-sized pots; if they are potted on into 6-inch pots, they will develop into fine specimens some 3 feet in height. Being a native of Australia, it only requires greenhouse treatment. It is not by any means an easy plant to cultivate successfully, and great care is required at all times in watering; careful watering is, in fact, the secret of success. By growing successional batches, this Lobelia may be had in flower right through the autumn and early winter.

Statice Suworowii.—This pretty annual is very much neglected for greenhouse purposes; it always attracts attention with its long spikes of rosy-lilac-coloured flowers. It is best grown singly in 48-sized pots, as it forms a flat rosette of leaves. The small seedlings should be pricked off singly into thumb pots, as this plant is rather impatient of disturbance at the roots. Watering needs to be done carefully, as it resents stagnant conditions at the roots.

Freesias.—As these plants pass out of flower they should be placed in a light position in cold frames, where they should receive careful attention as regards watering and feeding, for their success next season depends on the care they are given after flowering. Too often they are put away under stages and similar positions, or in many cases discarded. The new coloured varieties are, however, too expensive to treat in this fashion, and, as indicated, should be given good cultivation to build up strong corms for next season. These remarks apply to most bulbs or corms that have a resting period.

Hibbertia dentata.—This beautiful greenhouse climber should be much more generally cultivated. It has a long flowering period, but blooms most freely during the winter, when it attracts with its neat, evergreen foliage and profusion of yellow flowers. Cuttings root readily in a close case, with slight bottom heat. It usually produces plenty of good seeds. This Hibbertia is seen at its best when planted out in a cool greenhouse.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Jerusalem Artichokes.—These vegetables should be planted during February when the ground is in a suitable condition. Select medium-sized, well-shaped tubers from the store and plant them in deeply-dug, well-manured land, placing the sets about five or six inches deep and two feet apart in rows three feet apart. Fork over the ground as the work proceeds. When the growths are well through the soil earth them up as in the case of Potatos. The plants grow very tall and should be supported in exposed positions. For this reason, also, they are useful for planting in front of unsightly buildings, rubbish heaps etc., to serve as a screen during the summer.

Parsley and Mint.—These two herbs are almost always in demand, and seed of the former should now be sown in a pan and placed in a warm house to germinate. When the seedlings appear give them cooler treatment, and when large enough to handle, prick them out in boxes of sifted soil about two inches apart. Grow them on in a greenhouse or frame until they are ready for planting out. Parsley plants growing in frames or under a south wall should be kept free of decaying leaves and have a little soot dusted around them. If not already done, the Mint bed should be top-dressed with sifted leaf-mould, and a few pieces dug up, placed in a box and stood in a warm house. Mint forces readily.

Spring Cabbages.—Examine the bed of Spring Cabbages periodically from now onward and make good any plants that have failed from the reserve quarter. Keep the plants well earthed up and give the roots a sprinkling of nitrate of soda in showery weather.

Gravel Paths.—The present is a suitable time to renovate paths with fresh gravel so that they may be rolled and made firm before the dry weather sets in. The surface should be loosened with a strong fork or pickaxe, large stones removed, and the gravel raked over with a large iron rake. Arrange for the centre of the path to be higher than the sides in order to allow water to drain away readily. If new gravel is needed apply a good coating, rake the surface again, and roll it. Drains by the sides of paths should be cleaned out

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Border Chrysanthemums.—It is necessary now and again, if not every year, to propagate a fresh batch of these plants and discard the old stock, healthy young plants giving better returns than worn-out roots. Basal growths suitable for cuttings are now available both on the plants wintered in cold frames and those left in the open, the winter having been harmless to the latter so far. Root the suckers in a cool frame, then pot them in 60-sized pots and grow them hardily until planting-out time arrives.

Japanese Roses.—This section of Roses might well be given more attention from growers, the blooms being very fragrant and the plants themselves far choicer than some of the commoner evergreen shrubs which are allotted much space in many gardens. These Rugosa Roses are very hardy and will thrive in practically any soil and position, including partial shade, as distinct from being directly under trees. The single and double kinds are alike beautiful, while the fruits of the former give an added pleasure in the garden after flowering. The best of the hybrids of this class with which I am acquainted is Conrad F. Meyer, a large, double, silvery rose-coloured variety, and fragrant. The great hardihood of Rugosa Roses permits of their pruning being done in advance of other Roses; it may be done now, thinning out weakly shoots entirely and cutting back the strong growths proportionate to the size of the bush required. The hybrid above referred to will do best treated as a pillar subject rather than in bush form, being so exceptionally vigorous of habit. If the soil is in a workable condition, planting may be done now—pruning the shoots hard so soon as possible afterwards.

Dwarf Polyantha Roses.—I would draw special attention to the value of this class of Rose as a bedding plant, it being peculiarly fitted for the purpose on account of its freedom of, and continuance of flowering, its quick growth and neat habit. Where, too, economy has to be studied, making it impossible to use many tender and semi-tender plants in the flower beds, these "Poly-Poms" or Fairy Roses will prove ideal substitutes. Or a group may be introduced in the herbaceous border, as is the case here, and though this practice may not have the approval of the connoisseur of herbaceous border planning, it gives variety and interest. The sooner planting is done now, the better; and after the initial outlay no further expense will be incurred, with the possible exception of supplying a fresh plant for filling an odd gap now and again where plants have failed. Unfinished plantings of any other Roses call for the earliest possible completion, if the weather and ground will permit, so that the roots may make headway before warm weather sets in.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Miltonia.—The Brazilian section of Miltonias should be examined to see if any of the plants are in need of more pot room or fresh material. Such species and hybrids as M. Moreliana, M. spectabilis, M. Lubbersiana, M. Bluntii, M. Clowesii, M. Regnellii, M. candida, and M. Lamarckiana will be developing new roots, and the present is the proper season to repot them. A plant may require repotting, without being placed in a larger receptacle, through the compost becoming decomposed. In some cases a Miltonia will deteriorate from causes not always apparent, and it will then be advisable to place the plant in a smaller receptacle so that it may become well rooted. Miltonias of this section being mostly dwarf habited, do best when grown in shallow pans. All old and useless pseudo-bulbs should be cut away, and the growing pieces made up afresh, giving each leading growth room to develop. Those pieces which have few roots to hold them in position should be pegged firmly to the compost. The whole of these Brazilian Miltonias succeed satisfactorily in a shady position in a house having an intermediate temperature. Ample drainage is necessary, and the plants being surface rooters, no great depth of material is necessary. Employ as a rooting medium Osmunda, A1 fibre, and Sphagnum-moss in equal parts, chopped into moderately short portions, and place the materials rather firmly around the rhizome of the plants.

Miltonia vexillaria and M. Bleuana.—These Orchids and their many hybrids are growing freely; as the days lengthen, they will rapidly increase in strength. Plants that have filled their pots with roots may have water afforded them from now onwards whenever they require it, taking care that the compost becomes dry between each watering. Watch carefully for thrip, which is very partial to these plants, especially if grown in a very warm, dry temperature; should this pest become established it is most difficult to eradicate. Fumigating at intervals is the safest and surest means to adopt as a preventive, or spraying at intervals with a weak solution of quassia extract may be done. Often these plants throw up leaves folded closely together, especially the weaker growers, and unless the foliage is released it will be permanently injured. The leaves are easily released by means of the handle of a budding knife, or even the thumbnail, but care must be taken not to injure the delicate leaves. Those plants which produced their flowers during the autumn, such as M. vexillaria Leopoldii, may be repotted when their growths have attained a sufficient size, and are about to develop new roots. They need a compost similar to that employed for the summer flowering varieties. These plants delight in an even temperature the whole year round, and may be grown in a cool temperature during the warmest part of the year, and in an intermediate temperature during the winter months.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Orchard House.—The advantages of an orchard house are now fully recognised, especially in cold districts; even in more favoured districts they render material assistance in meeting a demand for dessert fruit purposes. Pot grown trees yield heavy crops of fine fruit, while cordon Cherries and Plums may be trained up the rafters without causing too much shade. Fruit trees in pots call for a considerable amount of time and labour, and where it is not possible to give the necessary attention the trees may be planted out either as bushes, pyramids, or cordons, or trained on wires in the form of cordons—single, double or palmette, or in fan shape. A depth of two feet will be sufficient for the borders, and for stone fruits the most suitable material is loam of a retentive character with sufficient old mortar rubble and burnt refuse to render it porous. Ample drainage will be required where the nature of the subsoil does not permit of a free passage of water. Pears and Apples grow splendidly in an unheated house where plenty of air can be admitted; Cherries, Plums, Apricots, Peaches and Nectarines succeed admirably under similar conditions. If the house is heated its value is enhanced, for by gentle forcing the season for ripe dessert fruits may be considerably advanced, further, the house may be utilised during the winter for other purposes. The main batch of trees in the plunging ground should now be placed indoors. As the trees are removed to the house, ascertain that they are quite firm in their pots, and if worms are present in the soil, use lime water to bring them to the surface.

Cordon Apples and Pears from the reserve ground may be brought in to replace unsuitable trees; if they are lifted carefully they will scarcely feel the effects of re-planting.

The Grape Room.—The bunches of Grapes should be carefully examined at frequent intervals, and any faulty or decaying berries carefully removed. It is essential that the air in the Grape room should be cool and dry. Rapid changes in the temperature will seriously affect the berries and cause them to decay.

THE ALPINE GARDEN.

GLOBULARIAS.

Long known to alpinists, the Globularias have never become general favourites in the rock garden, as their beauty is not so prominent, nor is their colouring showy enough to please the many. Possibly they have not been widely enough employed in such quantities as to enable them to be used in what is said to be their proper rôle—that of toning down the brilliancy of more showy flowers so as to give a finer harmonious tone to the scene. Most of those interested in these flowers have cultivated them for their own sakes, instead of growing them in masses as a setting for other flowers. It is hardly likely that many will see their way to adopt them as carpeters to their other plants, but will continue to retain them for their own quiet, but interesting charms.

The cultivation of all these Globularias is of much the same character. They like a warm place in light soil, but should not be subjected to excessive drought. A little lime in the soil is also helpful, while some shelter from wet in places subject to a heavy rainfall in winter is also appreciated at that season. Still, they are not difficult to grow, but one precaution, too frequently neglected with alpine flowers—that of top-dressing—should not be omitted in spring, and autumn, in addition, if need be.

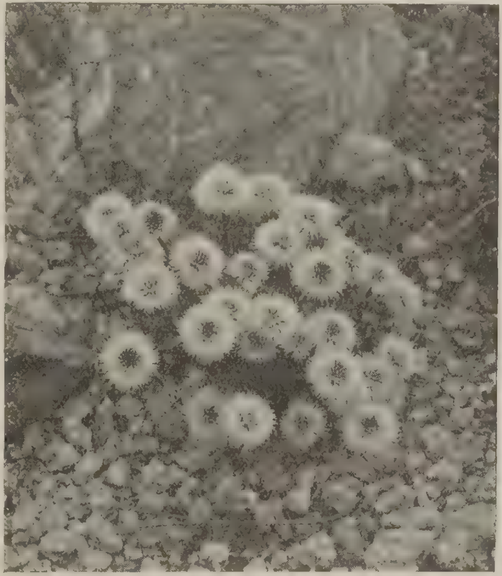
Fig. 35.—Globularia incanescens; flowers pale blue.

A brief description of the general character of the Globularias is all that is required. They are half-shrubby little plants, with neat leaves and round, ball-like heads of blue or blue-grey. Pretty, yet not showy, they require and deserve a closer inspection than is always given them, and this reveals points of beauty, subtle, yet compelling.

Globularia cordifolia is recognised as one of the prettiest and best of the genus. It grows to barely six inches high, or less, and, if happy, soon makes small carpets of glossy, deep green evergreen leaves, well-nigh covered in the blooming season—June—by the large number of blue-grey little heads of flowers. It is one which is as accommodating as any. There is also a good white variety, favoured by those fond of albinos, but not such a general favourite as the type.

G. incanescens (see Fig. 35) is one of the dwarfest and neatest of the genus, and its little leaves of beautiful blue-green and pretty heads of lavender-blue in May and June constitute a quiet yet pleasing feature in the rock garden at that season.

G. nana, as the specific name would suggest, is the smallest of all. It seldom much exceeds an inch in height and furnishes a dense mat of miniature deep-green leaves, set with button-like heads of violet blue. I believe there is a white variety in existence, but I have not seen it.

G. trichosantha is one of the taller and less attractive plants of the genus. It is about six inches high, and does not possess the neatness and innate charm of the smaller species. It has, however, good heads of blue flowers and may be found a place in large collections. There is a white variety of this, also, but it is seldom offered in trade lists. *S. Arnott.*

THE CARDINAL'S FLOWER.

In the chapter on Campanula, Parkinson describes a plant which he calls "Trachelium Americanum flore ruberrimo, sive Planta Cardinalis, the rich crimson Cardinal's flower," and gives a figure of it. It grew "near the river of Canada," and the plant itself he received from France "with the Latine name; but I have given it in English." It was known for a very long time as the Cardinal's flower, because of its brilliant colouring; but ultimately it has been generally called the Cardinal flower. Rea knew it by Parkinson's names, and mentions "another of this kind (which lately came from Virginia) with blew flowers"; or Lobelia syphilitica. Rea adds a few cultural notes, remarking on the tenderness of the plant, and that it "must be planted . . . in a pot that it may be housed in winter, for it will not endure frost."

A long time elapsed before an addition of any value to these tall, herbaceous Lobelias was made; indeed, so late as the introduction in 1809 of L. fulgens. Now there are many distinct colours in this section, ranging from white, through pinks, violets and purples to scarlet and deepest crimson. They vary in height, too, from about 2 feet to 6 feet, or perhaps more in very strong soils. A good type of crimson is more desirable than other colours, which are somewhat dull in effect. The plants still maintain the character of "tender" bestowed upon them by Rea, and in my experience they require a special treatment to winter them safely; it being not unusual to find whole clumps rotted when inspected in spring, even when carefully preserved in frost-proof frames. Latterly, I have taken the precaution to prepare the plants for lifting a few weeks beforehand. This is accomplished by inserting a broad-pronged fork under each plant and pressing it down just sufficiently to break the main roots. I have never found plants rot after this treatment.

A stock is easily raised from seeds, which should be sown early in the year if seedlings are to flower the same season. The seeds should be merely covered, and must be kept moist, as also the seedlings when they appear. The latter are very small, and after transplantation into other receptacles should be shaded from direct sun. They do well in a strong, moist heat, and by the end of May are advanced enough to plant where they are to flower. These Lobelias can scarcely have too much rotted manure incorporated with the soil, and to save watering a slight mulch of the same material is of value, while the plants succeed better when the ground is rather firm than loose.

Only selected seedlings are worth perpetuating. Spring is the time to propagate, and propagation is effected by division. Every small growth roots perfectly in a compost of equal parts loam and leaf mould, if kept in moderate heat till new roots are produced, and they may be safely planted out when it is seen that fair numbers of roots have been produced. Planting is best done rather deeply so that the leaves are partly covered with fine soil. It is important that plants so propagated should be granted a more than ordinary amount of manure, and in dry weather liquid manure is almost essential. As pot plants they are very handsome, and equally valuable for the supply of cut flowers for indoor decorations.

Yearlings are, perhaps, best left in the ground for the winter, under a 6-inch covering of Beech leaves or other suitable material. *R. P. Brotherston.*

JANUARY FLOWERS.

Irises.

Plants that flower in the open garden in January may be divided into two classes, the many which will occasionally produce a few stray flowers in open weather in that month, and those which regularly flower then. Little work seems to have been done on the question of the causes that bring plants into flower in one month rather than in another. We expect Iris unguicularis to give us flowers in November, but why should it not wait till April or May, when most of the others flower? It is true, doubtless, that in its native Algeria the autumn and winter rains rouse the plants into activity, after their long sleep in the scorching heat of summer, and that they are then in a hurry to flower and to set and ripen their seeds before the drought sets in again. There is confirmation of this explanation in the fact that after a comparatively cold and sunless summer like that of 1922, this Iris is much later in coming into flower in all but the most sheltered and driest positions. On the contrary, it is difficult to see why two Irises so closely related as I. histrioides and I. reticulata should flower, the one in January and the other in March, under identical conditions of cultivation.

The former species comes from Northern Asia Minor, and the latter apparently from the Caucasus, and we might have thought that the winter conditions in these two districts were so similar that allied species which had developed in them would have been identical in their behaviour when grown under similar conditions in our gardens. The fact, however, remains that there are these differences in the behaviour of closely allied species, and there is no obvious explanation of them, unless it is to be found in slight variations in local conditions, which could only be detected by close observations on the spot.

Some of the early Irises are among the most brilliant of all hardy flowers, and never fail to appear in January, unless, of course, there is a continuous spell of hard frost. Even when there are spells of frost it is astonishing with what rapidity the flowers appear as soon as the wind goes round to the west and the frost gives. The buds seem to be waiting in readiness in their parchment-like sheaths or spathes just below the surface, and it only remains for the tube that separates the actual flower from the ovary to lengthen. This lengthening of the tube may be very rapid—as much as an inch in less than 24 hours.

Of these early Irises, I. histrioides is one of the most reliable. Even after the bad summer of 1922 and in the none too favourable surroundings of a suburb not ten miles from Westminster, the masses of buds that have appeared on clumps of this species are really amazing. The buds appear in their membranous spathes almost before the points of the leaves have pierced the surface, and then the broad-petalled, sturdy flowers unfold rapidly. The colour is a bright rich blue, except in the centre of the heart-shaped blade, where there is an area on which the white ground with its inconspicuous median yellow ridge is closely blotched with the same shade of blue.

Among seedlings of this Iris there is a certain amount of variation in the exact shade of the blue colour, and a pure white form with a central yellow ridge has appeared among some seedlings this year. There are also differences in the exact shape and poise of the standards. The falls and the style branches are, however, always extended in a plane that is much nearer to the horizontal than is the case in any of the allied species excepting I. sophenensis. This might almost be looked upon as a small and less brilliantly coloured form of the same species, for it behaves identically in every way. It thrives under the same conditions, and has the same method of increase by forming at the base of the flowering bulb a number of very small bulblets, which take several years to develop into bulbs of flowering size.

Very similar to I. histrioides is I. Histrio. It differs, however, in having more distinctly funnel-shaped flowers, in which the blue blotching on a white ground is even more conspicuous than in I. histrioides. Another point of difference is that the leaves of Histrio are so far developed before the flowers appear that they overtop them. I. Histrio is a very variable plant, and some forms of it are apparently much more delicate than others. A good form is a most desirable plant, and may be relied upon to furnish flowers in January.

Smaller than either of these Irises but even more brilliantly coloured are some hybrids between the well-known I. reticulata and the rare species I. Bakeriana which has passed on to them the velvety texture of the blades of its falls. If these hybrids prove to have the constitution of I. reticulata they will be a valuable addition to the list of Irises which will flower in January.

In the hungry sand of Godalming it was never easy to keep these plants healthy, but in a piece of old kitchen garden where the rather light soil has been well enriched with humus from constant dressings of manure in the past, they are now doing extremely well.

Another bulbous Iris which never fails to give flowers in January is I. Rosenbachiana, a Turkestan species that delights in a well-enriched, sandy soil, and a thorough baking in summer. The earliest forms are white, with a deep crimson tip to the falls, along the centre of which runs a conspicuous golden crest. The flowers spring from the bare earth almost before the tips of the leaves are showing, and a strong bulb will throw two or even three flowers in succession.

All these Irises may be enjoyed in the open ground, but an even better way is to pick the buds just before they open and then stick them in shallow bowls of wet sand where they will remain in full beauty for more than a week, provided that the room is not overheated. The same method should be tried with the January Crocuses, for it is seldom before February that we get enough sun, at any rate near London, to cause the flowers to open wide.

Crocuses.

The best January Crocus is probably the Italian C. Imperati. Of this the three outer petals are backed with buff, more or less conspicuously marked with three dark purple, feathery veins. The inner surface and the whole of the three inner petals are of a bright lilac—a most striking contrast. The flowers are very large, and the leaves develop early enough to provide a background for them. There is also a very beautiful white form, of which the buds are a deep cream, though this colour is confined to the backs of the outer petals. The open flowers are pure white, with a yellow throat, and a conspicuous orange-scarlet stigma.

Another January Crocus is the Greek C. Sieberi (Fig. 34), with flowers of a particularly pleasing shade of blue lavender, and yet another, the deep golden yellow form of C. candidus, which used to come from Constantinople before the war. C. chrysanthus is at its best a little later, but the earliest flowers are usually open in January. It is a native of western Asia Minor, and is very variable in colour. It may be pale or deep yellow, usually, but not always, striped with purple on the outside, or even of a pure white.

Few Crocuses are more beautiful than that seedling of chrysanthus, which is named after Mr. E. A. Bowles. It is of a rich butter yellow, of well-rounded form, and usually in flower in the last days of the present month.

Colchicum.

Another January plant which grows among my Crocuses is a small Colchicum, which I obtained from the neighbourhood of Zengg, in Croatia. Each bulb produces four or five white or pale pink flowers from pairs of narrow, dark leaves, and at first sight it is only by the fact that there are the six anthers of the Liliaceae instead of the three of the Iridaceae that we see that it is a Colchicum and not a Crocus. Its proper name has not yet been determined, but it is a desirable little plant for rock gardens. It is perfectly hardy, and I have had no difficulty in raising it from seeds to the flowering stage. *W. R. Dykes.*

THE FUTURE OF BOX HILL.

About a year ago attention was called, in the Press, to the fact that Box Hill was in danger, a very large adjoining portion being for sale and described as "ripe for development." A prepared map shows the present extent of the nation's property there which, after Miss Warburg's gift last year, consists of Box Hill and half a mile of the main ridge to the eastwards, together with the northerly spur. The valley up which the road runs, and the next spur to the east, form one side of the most beautiful part of the whole place—"Happy Valley."

It is the area, 248 acres in all, immediately north of this narrow strip, which is now offered for sale by Lord Francis Hope. It consists of open woods, a Bracken-clothed plateau with gorgeous views over "Little Switzerland" and the line of the downs westwards, and—most important—forms the eastern side of "Happy Valley"; its acquisition would convert the nation's property into a compact rectangle. Lord Francis Hope has intimated that, in the event of the land being sold to the nation, he would put forward to his trustees a price of £5,000 for the land, plus £2,000 for the timber or, alternatively, £5,000 net, provided he is allowed to cut timber not exceeding £2,000 in value before sale. This latter, of course, is most undesirable. The offer is a generous one, for it works out, with the timber, at £28 per acre, as compared with £50 per acre paid by the late Leopold Salomons for the original gift of Box Hill proper.

The articles and correspondence which appeared last year in the Press provoked an offer as generous from a reader of *Country Life* living in Rio de Janeiro, who wrote as follows:—

"I have carefully studied the matter, and think it is a good opportunity for anyone wishing to do something *pro bono publico*, and therefore am very glad to send you the enclosed draft of £1,000 towards the purchase of the land (with the conditions I will mention later).

"In buying land for the public one has to be careful that private interests do not reap as much, or more, benefit than the public, but the present estate, lying alongside a piece already public property, gives the public not only its own actual area, but adds a value to what the public already owns. This is a great point."

"Now I am not a wealthy man; I work very hard for every thousand pounds I earn, but I do not pay English taxation, and I want to help decent things to be done in England.

"So I send you the thousand pounds with the following obligations and conditions:

(a) That the purchase be completed before September 30, 1923.
(b) That in addition to this £1,000 herewith, I will subscribe the last £1,000 required. This should encourage other subscribers.
(c) That if the money be not subscribed by the date mentioned above, you return to me the thousand pounds and I am absolved from further responsibility.

"I think it very good of you to be working up this purchase. I do not want my name to figure, you can use my initials.—Yours very truly,

G. H. C."

The Box Hill Committee have voted £1,000, but we must appeal to England for the balance—£4,000, to those who, like our friend in South America, wish to see decent things done in England. *Country Life* will give an initial £250 on condition that three donations of a like sum are forthcoming.

The danger is a very real one. Where land has already been developed, as along the road to Box Hill from Walton, it is horribly disfigured by ruined woods, and bungalows of the meanest sort. The Oaks on the land under consideration have already been marked for felling, and unless the money can be secured, the beauty of the Box Hill woods will be greatly diminished.

I appeal to your readers for subscriptions, which will be very gratefully received if addressed to: The Box Hill Fund, 20, Tavistock Street, Covent Garden, W.C.2. *P. Anderson Graham.*

JANE LOUDON.

In his interesting account of Mrs. Loudon (p. 368, December 23, 1922)—it does not appear that she ever used the name "'Wells"; on the title pages of her books she stands as "Mrs. Loudon," and her private letters are signed "J. W. Loudon"—Mr. Brotherston does not seem to have consulted either the late G. S. Boulger's notice in the *Dictionary of National Biography* (xxxiv.—148), nor our *Biographical Index*, both of which supply information as to the dates of her birth and death, whereof Mr. Brotherston gives no record. According to the former, she was born at Ritwell House, near Birmingham, in 1801; her death, at Porchester Terrace, Bayswater, occurred on July 13, 1858, in her 58th year.

The fullest account of Mrs. Loudon, which Mr. Brotherston seems to have overlooked, though it is duly indicated in the *Biographical Index*, is that given in the *Cottage Gardener* for July 27, 1858: it is preceded by the following prefatory note which contains no indication of the source whence it is derived; it is, however, doubtless taken from her memoir prefixed to her husband's posthumous *Self Instruction for Young Gardeners* (1845), which she saw through the Press. Mr. Brotherston, like myself, has presumably not seen this, as he refers to it as "brief" and omits numerous details which would have added interest to his article. Of these, I propose to supply a few, first giving the editorial note to which reference has already been made:—

"In our last number we announced the death of this lady, and we will now proceed to give, with some few additions, marked by parentheses, what is really her autobiography; for she was so identified with all her husband's pursuits, owing to his decrepitude, that in sketching his life she at the same time has portrayed a very considerable portion of her own."

It was "about 1829," she writes, "that Mr. Loudon formed his first acquaintance with me"; he had been attracted to her novel, *The Mummy*, mentioned by Mr. Brotherston, from the reference it contained to a steam plough. Loudon "was so much pleased with the book that he published in the *Gardener's Magazine* for 1828 (p. 478) a notice of it under the head of 'Hints for Improvements,' and had from that time a great desire to become acquainted with the author, whom he supposed to be a man." The wish, however, was not realised until February, 1830, when an introduction took place which speedily ripened into an attachment, and they were married on the 14th of the following September. In the *Gardener's Magazine* (published in October of the same year, but evidently written previously), Loudon had referred to a garden hybrid Pelargonium which had been named P. Webbianum "in compliment to the accomplished Miss Webb, the elegant authoress of *The Mummy* . . . who, to her numerous acquirements is adding, with unparalleled ardour, an extensive knowledge of botany." At the time of their marriage *The Gardener's Magazine* produced £750 annually; but this amount gradually decreased in consequence of the appearance of Paxton's *Horticultural Register*, and on Loudon's death, in 1843, the *Magazine* ceased to appear.

The account to which reference has been made contains an interesting description of their wedding tour in the Lakes and in Scotland, the latter part of which was attended with much haste and inconvenience on account of the serious illness of Loudon's mother, to visit whom was one of the objects of the journey: they arrived in Edinburgh (by coach and steamer) in time to see her, but she died shortly after their return to London, where Mrs. Loudon at once settled down to work as her husband's amanuensis. Loudon was then engaged on the edition of his *Encyclopaedia of Gardening*, which appeared in 1834; her help is not mentioned in the preface to this book, but she doubtless co-operated with him. In 1850, seven years after her husband's death, Mrs. Loudon issued what she described in the preface as "an entirely new edition of this work," which, although conducted on the same principles as those which guided Mr. Loudon himself, was carefully revised, and in some part "completely re-written." This was reissued in 1878 by Messrs. Longman's as a "new edition, edited by Mrs. Loudon"; the statements, accurate when the volume was first issued, were misleading as to the date, as Mrs. Loudon died in 1858. For the same reason the date (1872) on the title-page of Loudon's *Encyclopaedia of Plants* is incorrect, though the book is accurately described as a "new impression." Mrs. Loudon's share in this is confined to a "supplementary list" and to a preface (dated April, 1855), in which she gives an account of the previous supplements. Neither Mr. Brotherston nor the *Dictionary of National Biography* make any reference to Mrs. Loudon's share in these important works.

A well-written and well-informed little book not mentioned by Mr. Brotherston is *Tales about Plants*, which Mrs. Loudon contributed to a then popular series of "tales" by various authors, relating to animals, countries, etc., all published under the name of "Peter Parley." Shortly after the death of her husband Mrs. Loudon, whose means were limited, set to work to obtain a pension, and to that end obtained the help of Robert Brown, on the advice of Captain Mangles who had himself unsuccessfully interested himself on her behalf. When writing to Brown she enclosed a list of her "Works on Gardening and Botany published since Christmas, 1838," in which we find Peter Parley's *Tales about Plants*; the book is not dated, but was, I believe, published in 1839. From a grateful letter to Brown, dated March 24, 1846, it appears that the pension of a hundred a year was granted by Sir Robert Peel early in that year: "I am entirely at a loss to know whether I am indebted for this to the kind offices of my friend, or whether it is Sir Robert Peel's own kindness, but at any rate I am very grateful." Her letters relating to the pension are in the Department of Botany.

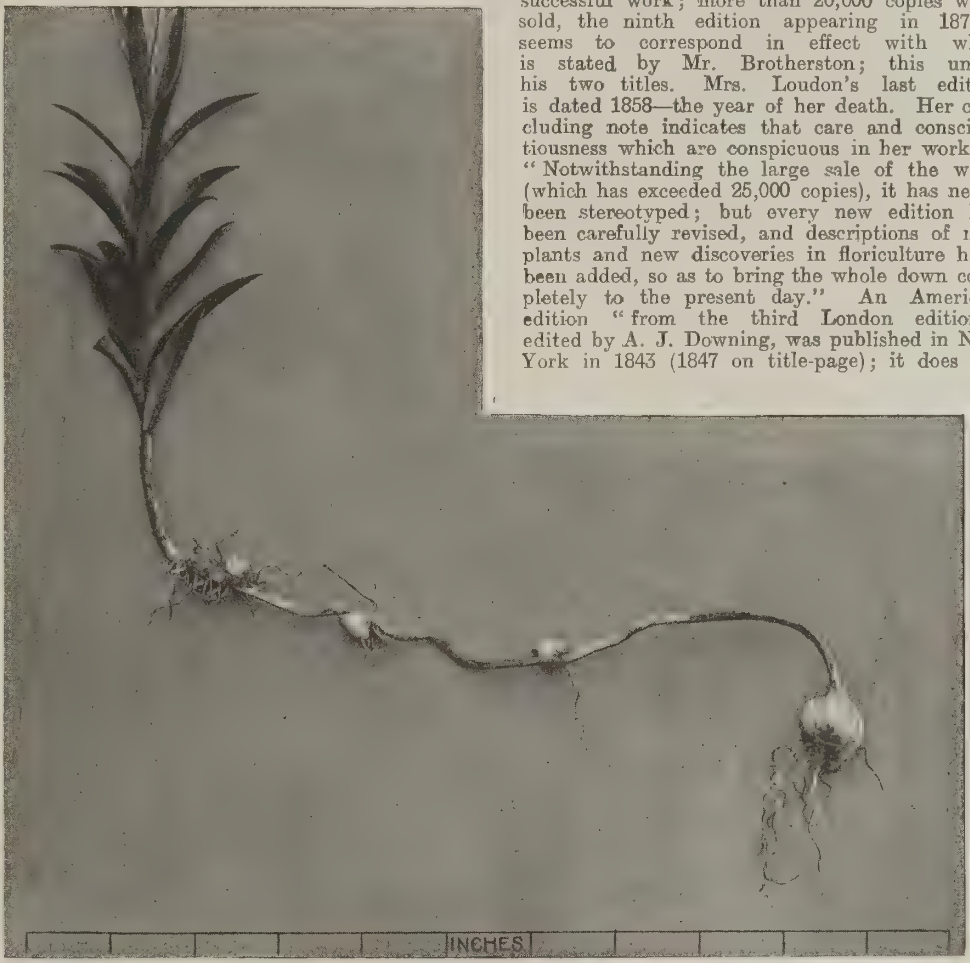

Fig. 36—Creeping stem of Lilium Duchartrei, at Highdown, Goring-by-Sea (see p. 79).

One or two notes on two others of Mrs. Loudon's books may be added. Of *British Wild Flowers*, which Mr. Boulger (*D.N.B.*) says was first issued in 1844-5, an edition with coloured plates appeared in 1846; these are adapted from Sowerby's *English Botany*, though without acknowledgment—an omission the more remarkable in that the author refers her readers to that work for figures of plants which were not included in her illustrations. Another edition, illustrated by H. Noel Humphreys, was, according to the *Dictionary of National Biography*, begun in 1856.

Mr. Brotherston mentions *The Lady's Flower Garden* and *The Companion to the Lady's Flower Garden*, both published in 1840. Is not *The Lady's Companion to the Flower Garden* intended by him under both these titles? This, Mr. Boulger says, was Mrs. Loudon's most successful work; more than 20,000 copies were sold, the ninth edition appearing in 1879—seems to correspond in effect with what is stated by Mr. Brotherston; this under his two titles. Mrs. Loudon's last edition is dated 1858—the year of her death. Her concluding note indicates that care and conscientiousness which are conspicuous in her work:—"Notwithstanding the large sale of the work (which has exceeded 25,000 copies), it has never been stereotyped; but every new edition has been carefully revised, and descriptions of new plants and new discoveries in floriculture have been added, so as to bring the whole down completely to the present day." An American edition "from the third London edition," edited by A. J. Downing, was published in New York in 1843 (1847 on title-page); it does not seem to have been considered necessary to ask the author's permission for this, as none is acknowledged.

In these notes I have confined myself to information additional to that contained in Mr. Brotherston's account of one who, in her time, did much to advance both botany and gardening, and whose memory may well be recalled. *James Britten.*

Special Cups for Paeonies.—Mrs. Edward Harding, of Burnley Farm, Plainfield, New Jersey, the well-known authority on garden Paeonies, has presented the Royal Horticultural Society with a sum of money which is to be devoted to the provision of a cup in each of the years 1924, 1925, and 1926, to be awarded for the best display of Paeonies shown by an amateur grower. The exact conditions which will govern the competition for these cups will be arranged and published later, but Mrs. Harding was particularly anxious that time should be given to allow growers to get together a representative collection of these valuable decorative flowers in order to compete for the cups.

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LILIES IN 1922.

In a country where the climate varies so much as in the British Isles, no review of a season in relation to a particular genus can apply with equal force to all parts. But in a general way 1922 will not go down to history as a good year for Lilies.

A dripping summer does not make for a fine Lily season, and when humid atmosphere, low temperature, and scant sunshine go hand in hand, as was the case throughout all but the beginning of last summer, the Lily grower must make the best he can of it. Such an experience, though not rare, may be momentarily disheartening even to the hardened expert, but hope is perhaps as perennial as any plant in the garden, and will pull him through.

Seldom, surely, could there have been a year richer in promise for the expert cultivator of Lilies than 1922. The dreaded early winter rains had been scant, and there was nothing in the autumn of 1921 to interfere with the ripening of the bulbs. In culinary language, they were "done to a turn." The opening months of the year did not bring that precocity of growth many looked for after the memorable drought; nor did they present any novel features: the usual alternations of mild weather and cold; the usual hopes and fears; nothing that has not figured in these annual notes many times already.

Even April has been as dour before as it was last year, though report had it that the frost of the early morning of the 2nd constituted a record for Kew. Often and often in years gone by has winter fought a rearguard action up to the middle of May, but not so often, perhaps, has the belated victory of the sun been so sudden and so complete as it was last year. No one can yet have forgotten how, without any warning, high summer burst upon the country half-way through May, bringing with it a riot of frost-checked blossom worthy of a Japanese spring. Each succeeding day saw a rise of the mercury and a more brazen look on the sky, till all records were passed during the Derby race week. By that time a marked absence of rain was beginning to tell on a country already abnormally dry, and vegetation was wilting painfully.

But the Pyrenean Lily, apparently proof against any climatic abnormality, opened its flowers five days in advance of the earliest date of which the writer has a record during a quarter of a century, and was soon followed by L. szovitzianum and the rest of the early-flowering species.

In the review of "Lilies in 1921," written on May 6 of last year,* the outlook for Lilies in the summer of 1922 was reported as excellent, and half-way through June the prospect had seldom seemed so fair. It was too good to last, and sure enough, in a week it was less promising; in a fortnight the bad weather had set in, and went from bad to worse. July and August brought no relief, and not till Michaelmas did Nature mend her ways, winding up the season as brilliantly as she had begun it. But who, south of the Border, looks for Lilies in September?

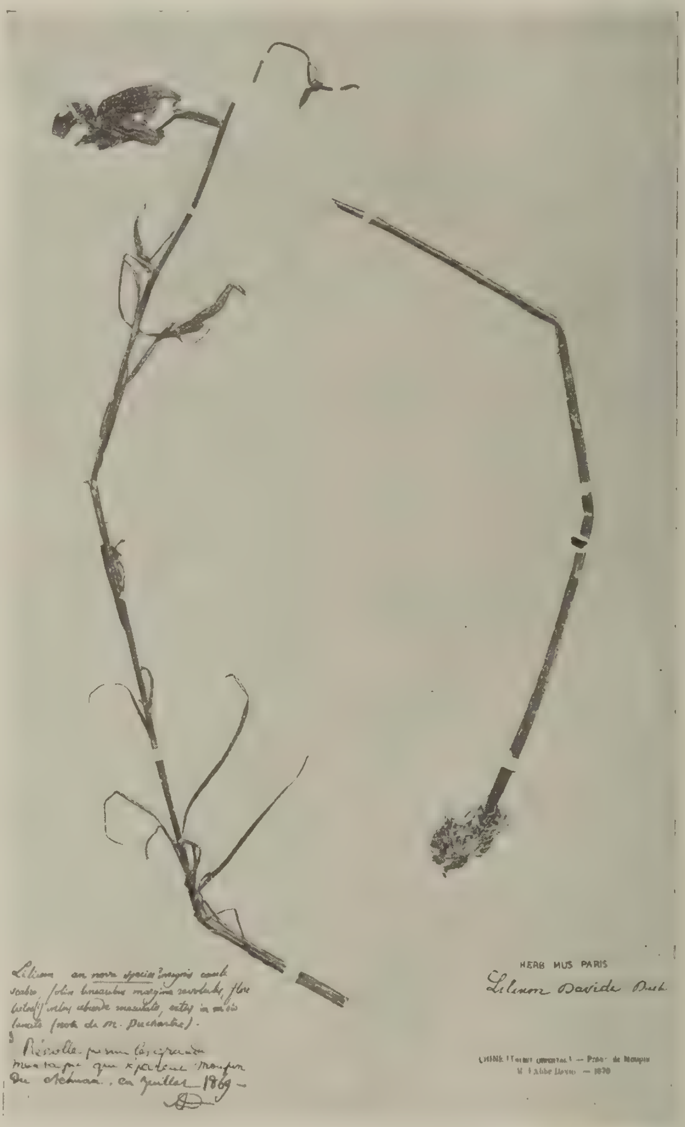

Fig. 37.—Lilium Davidii; type specimen in the herbarium of the Jardin des Plantes, Paris.

Virtually, and except in a few favoured places, the Lily season south of a line drawn diagonally from The Wash to Land's End, was confined to the first seventeen days of June. The crop of seed was poor and poorly ripened, and as was inevitable under the circumstances, Botrytis was rampant. It was a cruel disappointment for the amateur grower of Lilies, and he may feel that Nature was perhaps a little ruthless. But she never does things by halves, and if inclined to grumble at the débâcle she made of last summer, let the southerner ask himself what sort of a wreck the face of the land would have presented had the almost unbearable heat and drought of mid-June held for a few weeks longer. The answer must be that rain and relief came not a moment too soon to save the south.

In assessing the hurt done to gardens by the great drought of 1921-2, we must include Lilies among the sufferers. No estimate of the damage was possible till the spring of 1922 revealed the gaps in the ranks. Then it was apparent that on light, sun-baked soils the casualties were serious; on heavier land they were less numerous, and in places where it had been possible to irrigate the ground the casualty list was naturally lighter than usual.

A long drought affects Lilies in different ways, for while it makes the majority of the genus uncomfortable, it has the reverse effect on some species, especially those of European origin. Not since the dry summer of 1911 have the garden forms of L. candidum been so floriferous as in 1922. They were reported as flourishing in all directions, and notwithstanding the unfavourable summer the beneficial effect of the prolonged sunshine and concomitant baking of the bulbs in 1921 was evident enough in 1922. Drought has no terrors for this Lily, nor for L. pyrenaicum, L. Martagon, L. pomponium, or L. carniolicum; nor, in a modified degree, for L. chalcedonicum and L. szovitzianum—all European Lilies.

On the other hand, L. giganteum was prominent among the species which were hard hit last year. In the ordinary way this Lily seems to be less affected by a dull summer than others of the genus, and its comparative failure in 1922 was probably due as much to the arid condition of the ground in the early summer as to the drought of the previous year. In the intense dry heat which prevailed from the middle of May to the middle of June, many plants of this species were seriously checked; indeed, they stood still for weeks, and never recovered the ground lost.

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* *Gard. Chron.* No. 4,245, p. 229.

The same thing was noticeable in the case of . mirabile, the Chinese counterpart of the imalayan L. giganteum. It has been said that here is no difference worth mentioning between hese two species, and anyone holding that view nay be advised to plant a few bulbs of each pecies alongside each other and watch them hroughout their annual growth; he will soon e undeceived.

L. Duchartrei—to give Farrer's "marble Martagon" its proper title—is another Lily which failed last year in dry places in the south. It was crippled by the May-June drought, and made no further effort above ground. This is a plant of moist meadows, pushing its stoloniferous stem in and out of the roots of grasses, and multiplying itself at a rapid rate, as the photograph (Fig. 36) of the stem of a plant in the garden at Highdown shows. Under the circumstances its failure is no more remarkable than that of L. giganteum and L. mirabile—species not appreciative of direct sunshine.

No altogether satisfying explanation of the creeping stem typical of some Lilies has been advanced. To the non-technical mind it may well seem to be due to an abormally stony condition of the ground in which the stem, baulked by a stone from rising vertically out of the bulb, wanders about till it can find an outlet to the sun. Something of the kind may have initiated the habit so long ago that it still persists; but who shall say why the stem avoids many opportunities adjacent to the bulb of rising through the earth, preferring to meander through, perhaps, a yard of ground, when a couple of inches would suffice. Another explanation may possibly be found in some physiological relationship between the creeping stem of a Lily and that of Pyrola—considered by some to be parasitic—which sends out its long, string-like roots for yards.

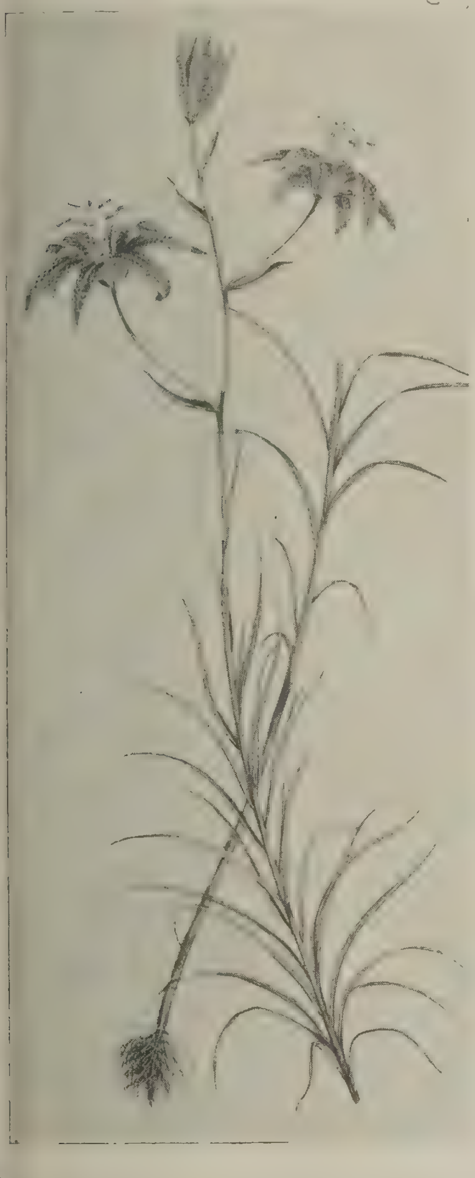

Fig. 38.—LILIUM DAVIDII, AS RECONSTRUCTED BY MONS. FAQUET FROM THE TYPE SPECIMEN. REPRODUCED FROM THE REPRODUCTION IN THE "MONOGRAPH OF THE GENUS LILIUM."

Variations of a seminal character have been noticeable in L. regale since the species was first raised here from seed, and every sowing produces strong plants and weak, as well as those which show variation in some particular, either in foliage or flower. On the whole, these variations have hitherto been of minor character, but they have been more pronounced of late than formerly. In some seedlings of particularly robust growth the flowers are not semi-erect as in the type, but clustering at right angles to the stem, with none too happy effect. In another form of not especially strong growth the trumpet is so widely open as to look almost flat, the base of it being deeply flushed with dark chocolate. Now that this Lily is becoming comparatively common, every effort should be made by growers to select the finer forms for propagation, discarding seed from the more or less puny specimens which are to be found in every sowing. The practice of mixing all seed together promiscuously cannot be defended. Nor can that of growers who fertilise L. regale indiscriminately with pollen of every Lily available, in the hope of originating some striking hybrid. In nine cases out of ten the only result is some slight alteration for the worse in the characters of the mother plant. That would not matter were the plants and their seed consigned to their proper place—the rubbish heap; but the temptation to dispose of them seems irresistible, and so they are bartered as L. regale.

In a few years there will probably be as many forms of L. regale as there are of L. pardalinum since the florist took that species in hand. The majority of these forms will have an infusion of alien blood, and though this will grow weaker as reversion proceeds, the temporary confusion will be incalculable.

It is not possible to conclude this summary without reference to the death of Mr. Elwes, whose name is so indissolubly bound up with Lilies. It is the case that for many years past his energies had been directed more towards arboriculture than Lilies, but he never lost his interest in his first love. Wherever he was, at home or abroad, he found nothing new or of interest in the genus which he did not share at once with the writer.

Mr. Elwes had a sound instinct for good garden plants, and when L. regale first came upon a delighted world (as L. myriophyllum) he was among the first to recognise its potential value as a good garden Lily. So impressed was he by the points of the species that he straightway took the trouble to bear a plant in a pot all the way from the Royal Horticultural Society's Hall, where it was exhibited, to the writer's garden 30 miles away, to discuss the points of it.

So long ago as 1884, in a paper read before the International Botanical and Horticultural Congress at St. Petersburg, Mr. Elwes made the sage prophecy that if any further discovery of Lilies was made it was likely to be in Western China; and he lived to see his forecast realised.

Though long out of date, and as he often said, no more infallible than other works of the kind, the *Monograph of the Genus Lilium* remains a worthy memorial to a remarkable man. Those who are familiar with the book are aware that two or three of the plates were not drawn from life, but "reconstructed" by the artist from herbarium material. A case in point is the drawing of L. Davidii, a Lily round which a web of uncertainty has gathered. Neither Mr. E. H. Wilson nor any other explorer has reported finding anything like it, or indeed any Lily of the Isolirion section, in Western China.

But, doubtless with the wish as father to the thought, there always remained the lingering hope that the elegant species so beautifully figured by Faquet might some day be found, and not have to be reckoned as a mythical plant. That it is so, however, has recently been demonstrated by Mr. E. H. Wilson, who has left no doubt that the Lily he discovered at Tachien-lu in 1908 (No. 1,448), and named for Mrs. Thayer, L. Thayerae (Fig. 39), is the long-lost L. Davidii. There has been some confusion between this species and L. Willmottiae, but no one who has the pair in cultivation could confuse them.

The dangers attendant on pictorial reconstruction of dried plant specimens are well illustrated by a comparison of the original specimen of David's Lily in the herbarium of the Jardin des Plantes and Faquet's fine drawing in the *Monograph of Lilium* (Figs. 37, 38). The upshot of Mr. Wilson's researches is that as a name L. Thayerae disappears, being merged in the older publication, L. Davidii. *A. Grove*, February 2, 1923.

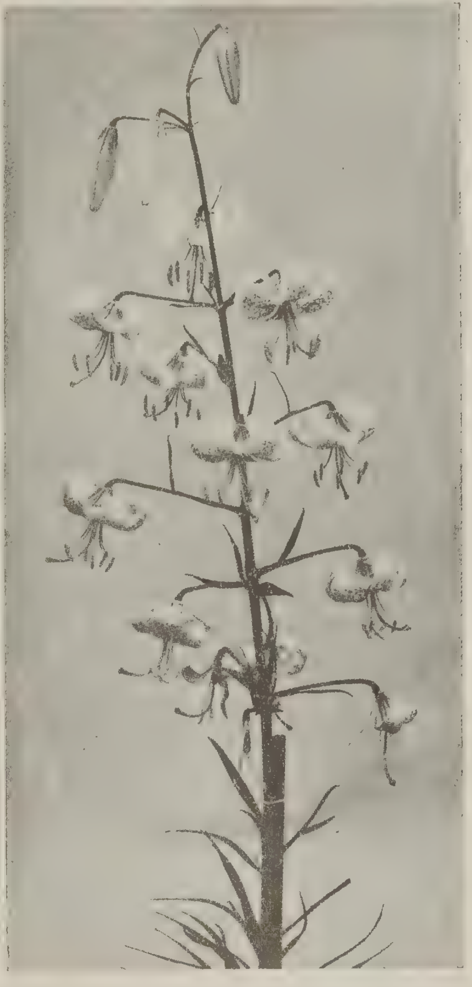

Fig. 39.—LILIUM THAYERAE (WILSON), NOW CONSIDERED TO BE L. DAVIDII.

SOME EASILY GROWN LILIES.

Lilium monadelphum (syn. szovitzianum) is a fine species for the garden. Planted in good, loamy soil and allowed to remain undisturbed, so that the deep descending, thong-like roots from the base of the bulb securely anchor it in position, it will push up its stately stems to a height of 6 feet or more, and the inflorescences are terminated by a pyramidal-shaped head of gracefully recurved blossoms.

The scarlet Martagon is another Lily which depends upon its basal roots for the support of the flower stem, and consequently should not be disturbed unless absolutely necessary. L. longiflorum and L. speciosum, with their several varieties, are other desirable Lilies for the garden. The Madonna Lily (L. candidum) is a general favourite with growers; if this species is transplanted, the work should be done in August, but it grows and flourishes best where it is undisturbed for several years. *T.*

MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. VIII.—THE MONASTERY OF YUNG-NING.

On June 13 we started back from Yung-ning, and on the following day pitched our camp in a glaciated valley south of the pass, on a portion of the limestone range, which I had not visited in the previous year.

There were several shallow glacier lakes under the grim cliffs, all fringed with Primulas. In the boggy ground P. Wardii, P. vittata, and P. pseudosikkimensis, now in their prime, formed sheets of interwoven colour. On drier, but still damp ground, the deep violet-frilled bells of P. brevifolia were scattered like Daisies over an English lawn. Just behind these colour belts, at the edge of the Rhododendron forest, masses of the stately P. corianum glowered in the dusk.

Turning to the harsh, white cliffs, the little mealy mauve Primula K.W. 4,154 fluttered in the breeze, and was more abundant here than on any of the other cliffs I explored. I am glad to hear that this plant is coming up well at home from seed sent last year. In its daintily-cut foliage, silvered beneath, its stunted scape, and compact truss of two or three large flowers, it is one of the most charming of rock Primulas. Nor is it likely to prove exacting. It demands limestone, and as much sunshine as it can get; but spring drought and the icy winter of these altitudes (albeit dry) leave it unmoved. One word more. In this country it sets very little seed, whether because it is not freely pollinated, or because the capsules are shrivelled in the hot glare of the early winter sunshine, as it beats on these white cliffs, I am not sure; I suspect the latter. Let us hope that it will prove more reliable in England.

A little higher up than the average of this species, the wide open eyes of the dwarf Primula K.W. 4,182 stared saucily at one from beds of moss or from rock niches. The flower of this species is almost identical in colour, form, and size with that of the last-mentioned species; otherwise the two plants are quite different. K.W. 4,182 is without meal, and the flower is solitary, and appears almost sessile on the rock. It is without bracts, too, and the calyx is quite differently shaped. Not a whit behind K.W. 4,154 in grace and daintiness, it should likewise prove a useful, hardy little plant for the rockery. Like its neighbour, it sets very little seed at Mu-li; but I understand that the mere pinch I sent home is germinating satisfactorily.

Next, under the bushes, the dull yellow tubes of the Maximowiczii Primula K.W. 4,179 drooped rather languidly. This species was already past its prime—it opens the first week in May. Fresher looking, on shaded mossy cliffs in the thin woods, was the Muscarioid P. pinnatifida, its helmet of violet flowers deepening to chocolate bracts at the crest. With it was associated the tiny purple Soldanelloid Primula, K.W. 4,402, with little spathulate leaves that have a deeply serrate margin, and are mealless.

This last is one of a confusing group, very common at all altitudes in the Mu-li country from 10,000 feet to 15,000 feet. They vary greatly in size, in flower colour, and in the presence or absence of meal and its colour—dead silver-white, or greenish-yellow. Which are species and which varieties it would be hard to say, and, perhaps, the answer is more or less arbitrary. In order to assist the diagnosis, I collected the species from every locality in which I met with it, under nine separate numbers, and divided them into two classes or species—those without meal, and those with meal. The former, by the way, are fragrant, at least sometimes, the latter not. I was rather astonished at this, because I had come to associate meal and fragrance in the Primulas. Of these nine numbers (I did not collect seed of all) two, at any rate, K.W. 4,154 with meal and K.W. 4,402 without meal, have germinated at home.

To go back once more to the question of meal on Primulas, and its significance—I do not know what use the experts assign to it, though the field botanist ought to have as good a chance as anyone of solving the problem—if it is a problem. Personally, I have not solved it. As indicated above, I at one time thought that fragrance largely resided in it; but that theory will not hold. At another time observation of many species suggested that bog and marsh Primulas were devoid of meal. But even if we ignore the claims of such plants as P. vittata and P. pseudosikkimensis—both mealy—to be considered marsh plants, the conclusion was vitiated by the discovery of the beautiful rose-pink Primula K.W. 4,385, which grows only in streams. Besides the converse, that Primulas which do not grow in bogs are mealy, is obviously not always true; woodland species, for instance, are never mealy, so far as I know. So that the fact that bog Primulas are generally (I think we may venture thus far) without meal does not tell us very much about the uses of meal.

Of course, a white efflorescence of meal renders many species more attractive—perhaps more conspicuous. In the case of rock Primulas, too, meal on the under surface of the leaves may be connected with protection from radiation. The fact is, there is probably no universal reason for meal; each case must be judged on its merits, since it doubtless serves many purposes.

One more Primula was found here, lower down on limestone outcrops in the forest—a stunted form of P. lichiangensis. Like all the species enumerated above, this, too, was a 1921 plant; but it led to the discovery of a plant, also growing on the limestone rocks, but in full sunshine, which I had not found the previous year. This was a very pretty species of Incarvillea, with pale pink flowers. The other two species of this region, I. grandiflora, and a coarse 2-foot plant with muddy-yellow flowers, are not pleasing. I. grandiflora—except in its white-flowered form, which is rare, is a vulgar-looking plant. It struts. The gawky, yellow-flowered species—I know not its name—is an overgrown weed. But I venture to think that this pale pink-flowered species, not exceeding a foot in height, is a good rock-garden plant. Unfortunately, I was only able to secure a little of the previous year's seed. This was the only place I saw it—a few dozen plants in all. The other two grow everywhere.

A full day's exploration on the limestone cliffs yielded plenty of flowers, but scarcely one I had not already come across. Isopyrum grandiflorium—one of the commonest and most widely spread alpines in N.W. Yunnan, but to this day hardly known in England, I believe; the yellow Lilium lophophorum, species of Myosotis (not M. Hookeri—on limestone), of yellow-flowered Cremanthodium—less abundant here than in the A-tun-tzu region; several members of Cruciferae and Leguminosae; species of Corydalis, Pedicularis, etc., the small Pinguicula, and a few more. A sorry collection for a day's cliff climbing

On June 16, in pouring rain, we broke camp, and, crossing the pass, began the long descent to the Yung-ning basin. There were still a few Rhododendrons in flower at the summit of the range; but they were obviously rather an afterthought. The all too brief glory of the Rhododendrons was already a thing of the past; the struggle to prolong it into July was only too painfully evident in battered flowers and floppy trusses. One of the mules had eaten some poisonous plant—Aconite perhaps—and was in a state bordering on collapse. We had considerable difficulty in getting it along, though the muleteers coped with the situation heroically.

By evening we had reached the broader wooded valley, where the mountain torrent becomes a river. Under the trees were colonies of the pinkish-purple Candelabra Primula, collected at Yung-pei last year (K.W. 3,920). I am given to understand that this is only P. Beesiana after all, a diagnosis which surprises me. The colour seems to me to be much less aggressive than normal P. Beesiana, the plant more mealy, and I imagined other differences. However, without comparing the two plants side by side, one is not entitled to give an opinion.

It took us two more days to reach the monastery of Yung-ning, the weather being very bad and the going consequently difficult. On the plain were bogs full of P. Poissonii, a belligerent purple; but the hot gold of King-Cups acted as a foil, and clouds of blue Cynoglossum smothered the combat. Primula Littoniana was almost in flower here too.

Riding across the plain between hedges of white Clematis, past the hot spring (where we halted for lunch and a bathe), we reached the monastery in the afternoon on June 18, *F. Kingdon Ward.*

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* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15, July 22, August 5, August 26, September 9, September 23, October 7, October 21, November 4, November 18, December 2, December 16, December 30, 1922; January 13 and January 27, 1923.

KITCHEN GARDEN.

ASPARAGUS BEDS.

Although the planting or sowing of Asparagus does not take place until April, advantage may be taken of spare days to get the bed made, for the soil will then be open to the weather. The following method of forming an Asparagus bed may appeal to those who do not mind putting in plenty of labour with a view to a good return from the crop.

The site for the new bed having been chosen, it should be pegged out by driving stout stakes into the four corners. The length of the bed can only be decided locally, but I would advise a width of 5 feet. This would admit of three rows at 18 inches apart and a margin of one foot from the edge of the bed on each side. Having marked out the bed by making a shallow cut with the spade along the line, it should be divided equally longitudinally by stretching the line through the middle, 2½ feet from either side, and cutting this also. The top soil should be thrown out equally on either side a spit deep, and the heap thus made levelled and covered with manure. The lower soil should be treated to an equal depth in a similar manner. If it is of different texture from and evidently poorer than the top soil, it should be thrown sufficiently far out to avoid mixing it with the top soil, but if there is very little difference it may be placed on top of the manure. This heap should also be levelled and covered with manure and leaf-mould. The third spit should be dug deeply and well broken The opportunity offered of mixing with it road grit, decayed refuse, etc., should not be missed.

If this work is done in the winter the soil will have time to become exposed and sweetened over a few weeks. When it is decided to complete the bed, which should be at least a month before planting to allow the soil to settle, the earth thrown out and covered with manure should be turned over from end to end to mix the manure, etc. The two layers of soil need not be mixed if this does not seem advisable. After turning and mixing, as would be done in the preparing of compost for a new border, the soil should be turned back into the trench, the second spit first where the two have not been mixed. If this work is done with a dung fork, where the land admits of the use of this tool, the lumpy soil and manure will largely be thrown in first and the fine soil on top, which will facilitate planting. This method of forming an Asparagus bed ensures perfect drainage, good depth of soil and thorough admixture of the manure, with every prospect of a good crop provided the planting is thoroughly well carried out. *W. F. R.*

MARKET FRUIT GARDEN.

In this southern district we have had scarcely any winter weather. January was, for the most part, mild and spring-like. It was also dry, the rainfall amounting to only 1.29 inch. It is to be hoped that this will do something towards discrediting the old, but still popular, idea that a plentiful crop of berries on Hawthorn, Holly and other trees presages a hard winter; for I have never seen the hedgerows so red with fruit. This crop is obviously the result of the fine, dry season of 1921, which ripened the wood and made it fruitful. No doubt we shall have cold snaps yet, but they can scarcely be of long duration, coming so late. It would be well if cold weather ame at once if we are to have it at all, for ruit buds are already moving, and vegetation enerally is advanced and tender. Appearances t present indicate a very early spring, which sually means a light crop of hardy fruit.

WINTER WORK.

People often ask what we find to do on a ruit farm during the winter, evidently being nder the impression that it is a time of holiday. t is true that there is not the same rush and ressure of work as during the gathering and acking season, but there is certainly no lack f employment for the permanent staff. Morever, the winter work is important, for on it deends very largely the crop of the coming season.

Pruning has first claim on all the hands who re sufficiently intelligent to undertake it; and t keeps them busy all the winter. Good proress has been made in this work, as there has een little interruption by the weather. I carry n through frost, so long as conditions are not oo severe for the workers, as I have never been ble to see that it injures the trees in the lightest. In pruning this winter it is noticeable hat the trees are particularly free from disease, specially Apple scab and canker. This is rather urprising considering how damp the past year as.

The first job for the unskilled hands was the preading of shoddy and other manures, which hey have since been digging in wherever it is mpossible to plough. In a few days they will ave to break off to distribute several tons of round chalk (carbonate of lime). This is pplied at the rate of one ton to the acre every hree or four years, the soil being very deficient n lime, two or three plantations being limed ach winter. I find that ground chalk costs bout 9s. a ton less if delivered loose in trucks nstead of in bags; and it will be quite as easy o deal with, provided that it is applied as it rrives, before the heaps have time to get wet.

Winter spraying is another job that will soon eed attention. I am still a believer in the use a plain solution of sulphate of copper, 10 lb. f 98 per cent. purity to 100 gallons of water. t seems to me to help against fungous disease; nd I am surprised to find that it has a mild, leansing effect. It certainly would not clear off thick, mossy coat, as caustic soda or even ime-sulphur does; but it keeps the bark clean once it is brought to a cleanly condition by he use of more drastic washes. A slight coat f moss gradually dies after spraying with opper sulphate, though the process is slow. I ike this wash particularly for Plums, as a preentive of brown rot.

When the weather prevents work in the open, here is plenty to be done under cover in the ay of making boxes for gathering, storing, and acking Apples.

CURRANT BUD MITE AND REVERSION.

Research workers have long suspected some onnection between bud mite and reversion in lack Currants. It has been claimed for one o-called resistant variety (Seabrook's Black) hat big buds are very seldom found on it ntil reversion has set in. In other words, if uch big bud is seen on a bush it is almost ertain to be reverted to a greater or less exent. I am inclined to believe that there is a reat deal of truth in this. I have a plantaion of this Currant, now in its fifth year. ast winter there was enough big bud to necesitate picking over by summer. During the ummer I discovered a good deal of reversion, nd went carefully over the bushes whilst the rop was on, marking all obviously reverted pecimens, which were subsequently grubbed. his winter, in pruning the plantation, I can carcely find any big buds. Where a bush ere and there is affected, it looks suspiciously s though reverted, as indicated by the growth. t seems quite obvious that most of the bud ite was on the reverted bushes that were rubbed. No doubt bud mite can occur withut reversion; but it is also certain that bud ite is sure to follow reversion quickly and to serious extent. Reversion seems to me to be much more formidable enemy than bud mite; nd I believe that, if we can keep our stocks ree from reversion, we shall go far towards reventing the spread of big bud.

BOXED APPLES.

A correspondent (p. 27) calls attention to the superior appearance of imported Apples offered in boxes in Covent Garden to home-grown fruit shown beside them in baskets. Such comparisons are frequently made, and it must be admitted that they do not reflect credit on home growers; but it is too often forgotten that the overseas grower does not grade and pack the whole of his crop in this style. He sends us only his best. His inferior fruit is kept for his home markets, and he does not pack them in boxes for shipment. The home grower, on the contrary, puts the whole of his crop on to our markets, so that the low grades are seen as well as the best.

To read some of our critics one might imagine that it is only necessary to pack Apples in boxes to make them sell like wildfire at greatly enhanced prices. As a matter of fact, this is not the case at all. Although nearly all salesmen and retailers deal freely in imported boxed Apples throughout the winter, comparatively few of them are prepared to buy home-grown Apples packed in precisely the same way. I have had salesmen almost beseech me to pack in the old way in half-bushels. No doubt it is only a matter of custom, and the prejudice will gradually be broken down, but at present the market for home-grown Apples in boxes, at prices high enough to pay for the extra labour and expense, is limited, and has to be sought.

I made a start with boxing last season. I am keen on the business, and anxious to box the whole of my first-grade fruit as soon as the market makes it worth my while. I found that my Apples made more in boxes than in baskets, if both were sent to Covent Garden, but that it often paid better still to pack in baskets for local markets, which were dead against boxes being used. Take the case of Cox's Orange. I selected the best fruit to box for London. The first few consignments did well enough, but then came a time when the sale for boxed fruit was extremely slow, and the price for the bulk dropped to 22s. per box. It became necessary to find another outlet for these selected Apples, and they were packed in half-sizes for local markets. They sold at the rate of 25s. per bushel of 40 lb., as compared with 22s. in London per box holding a few pounds more. As carriage and market charges were less locally boxing obviously had to stop.

DOUBLE-WORKED APPLES.

The article by *Pomona* on the "Influence of Stock on Scion" (p. 53) is very interesting, but it seems surprising that so many striking examples should have come within the notice of one observer. Surely they are very unusual. I have done a good deal of top-grafting in Apples, and have found that the new head comes into bearing quickly and is often very prolific; but I have never been able to detect the slightest change in the flavour or appearance of the fruit. I have trees of several varieties grafted on Gascoigne's Scarlet, but the brilliant colour has not been imparted in any case. There is also Bramley's doing extremely well on Irish Peach; but the fruit is no smaller, darker-coloured, or earlier than on the Crab or Paradise stock. The specimens of the new variety John Standish, exhibited at the Imperial Fruit Shows of the past two years, came from old trees of Lord Grosvenor that have been top-grafted; yet the fruit was as brilliantly red as it could possibly be. *Market Grower.*

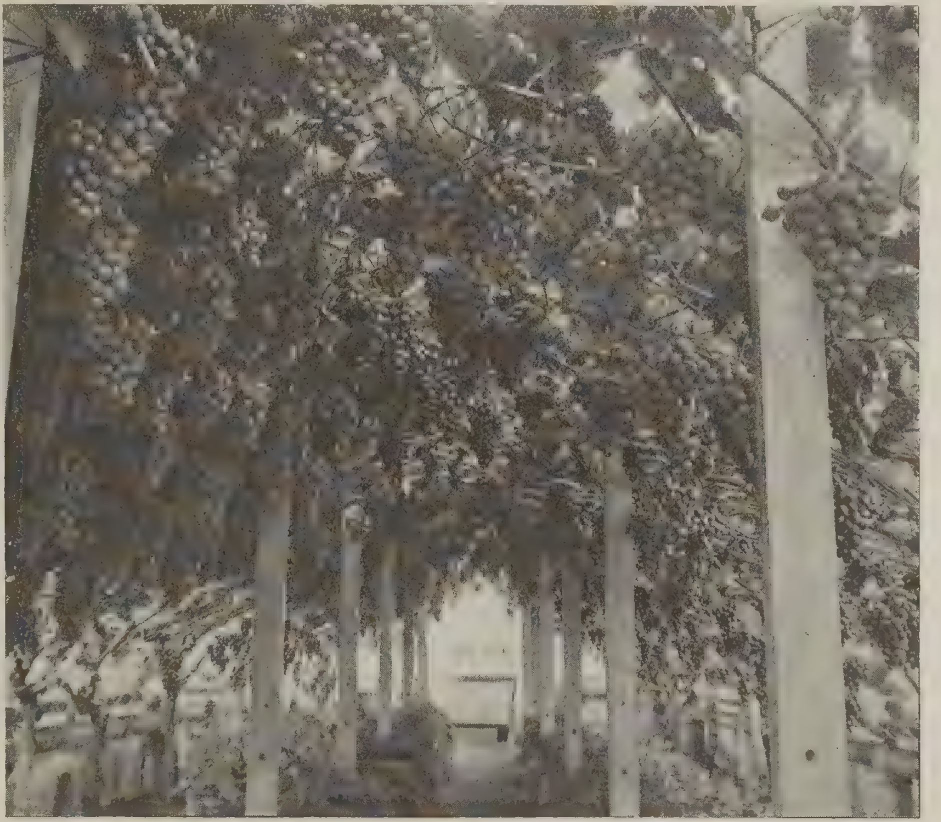

FIG. 40.—A FINE CROP OF GRAPES IN A MIXED VINERY.

GRAPE GROWING UNDER DIFFICULTIES.

EARLY in the year 1922, and at a time when some of the growths on my vines were three or four inches long, the boiler supplying the heat to the vinery burst. By coverings and other means, the vinery was kept warm, but this was a difficult matter. Fortunately, I soon had another boiler installed, and, to my great surprise and satisfaction, no apparent harm to the vines resulted. The photograph I send (Fig. 40) shows the vinery just about the time I commenced to cut the Grapes. The house is 60 feet by 15 feet, and contains Muscat of Alexandria, Gros Colmar, Alicante, and Black Hamburgh Grapes, and the crop in 1922 amounted to 630 lb. The borders are mainly outside the house, thus making the task of watering and feeding more difficult than in the case of inside borders which are fully under control. *A. Tidy, Cookham Nurseries, Berkshire.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Thladiantha dubia.—Following my account of Thladiantha dubia in *The Gardeners' Chronicle* of December 23, 1922, p. 371, *A. M.* has contributed an interesting article on this species and T. Oliveri (see p. 53). By his reference to my account he has, I fear, quite misunderstood the intention of my remarks. He writes: "The fact that the underground stolons are incapable of reproducing the plant seems at first surprising to anyone who has not previously studied the question; and when one considers the luxuriance of the plant and its tendency rapidly to cover the ground where it grows, it seems all the more inexplicable." The case will now be clear if I remark that the "underground stolons" of this sentence do reproduce the plant; and, indeed, they are the only means of its being perennial. But they are not stolons; indeed, if they had been, I should have had no reason for writing about them, and Thladiantha dubia would be amongst the most commonplace of perennials in the manner of its growth. They are veritable roots, and the point is that they usurp the function of stem, stolon, tuber, or whatever it might be of that kind. In my account I failed to give a sufficient description of these root tubers of Thladiantha dubia; they vary from spherical to the shape of a sausage, or they may be oblong in some form—they average about 2 inches in length—and they arise from the increase in size of any portion of a fibrous root. They are at first without trace of a bud, but they form singly or in clusters when wanted. They seem always to form in tiny transverse fissures, which remind one strongly of the lenticels of a shoot, but they are larger than most lenticels. It may be wondered why, in treating of T. dubia, I did not refer to T. Oliveri. The chief reason is that no seeds of the latter have been available, so that I could not say by raising seedlings that the history of the latter is the same as that of the former. It may be, but the plants are very distinct and different. Certainly it is worth while to bring the old tubers into comparison. Thanks, no doubt, to *A. M.*, T. Oliveri is represented by a fine specimen in the Cambridge Botanic Garden. It is a magnificent Cucubit, but too immense in its growth for any other than a large garden. While T. dubia is an elegant plant, T. Oliveri might be described as coarse. I have a grudge against it, however, inasmuch that, without watching, it would very soon smother its choice neighbours. The yellow flowers are handsome in the mass, and the profuse foliage of large leaves very fine of its kind. *R. Irwin Lynch, V.M.H., Torquay.*

British Empire Exhibition, 1924, and Horticulture.—Your notice on page 70 relative to the above exhibition is worthy of the most earnest consideration of all members of the trade and others interested in horticulture. It will be observed from the particulars that the opportunity occurs for a permanent horticultural exhibition of a magnitude never before attempted in this country, or, I believe, in any other. For this reason alone it is a subject of vital importance. The Empire Exhibition of 1924 is a great undertaking, and is being supported throughout the whole Empire in the most wonderful manner. The result will be that there will be congregated at Wembley an exhibition on lines hitherto unapproached in any other country. Inasmuch as it is promoted to stimulate the trade throughout the Empire, it is of vital importance to horticulture that it should be well represented, as owing to the closing of the American markets, and the growing interest in horticulture throughout the Colonies, it is all the more important that we should endeavour to extend our trade in this direction. The question at the present moment is whether the Royal Horticultural Society will take a leading part in this exhibition, by co-operating to the full with the authorities and holding their big Chelsea show and others, such as a summer and autumn show, at Wembley, and so, as it were, throw the whole weight of its influence into the horticultural section. A meeting is to be called of all exhibitors of the R.H.S. within the next few days, and, feeling as I do the importance of the question, and the opportunity given to horticulture, I hope that everybody interested will attend that meeting and carefully consider the proposals then made. If all sections of horticulture co-operate in producing at Wembley a display such as never before has been seen, I am convinced that such a display would have an extraordinary effect on the trade as a whole in the next year or two. We must remember that Wembley will be visited throughout the whole of the summer by enormous multitudes of people, and the effect on them of well laid out gardens, backed up at intervals with big shows, will be of lasting value. It is hoped that horticulture will be supported by the Royal Horticultural Society just as the leading business communities throughout the Empire will be by their respective governing bodies. The exhibition is in the hands of past-masters in the art of organisation, and for the benefit of those who do not know Wembley, it may be added that it is only ten minutes from Baker Street, and that during the exhibition every main line will run trains direct to Wembley Station. *Robt. W. Wallace.*

SOCIETIES.

BRITISH MYCOLOGICAL.

A meeting of the British Mycological Society was held at University College, London, on the 20th ult.; Professor O. V. Darbishire, president, in the chair. The first paper was by Dr. H. Wormald on "Crown Gall on Nursery Stock." A résumé was given of the history of Crown gall investigations, particularly with respect to the work at the U.S. Bureau of Plant Industry, by Dr. Erwin F. Smith and his colleagues, who have proved that galls of this type may be reproduced by inoculation with a bacterium which they named Bacterium tumefaciens. It was shown, by photographs and lantern slides, that tumours of the Crown gall type are to be found on a number of cultivated species of plants in this country, and the question arises, are all these galls produced by a parasitic organism, and if so is it the same parasite in all cases? Crown gall on Apple stocks is under investigation at the South-Eastern Agricultural College, Wye, and at the East Malling Research Station. On Paradise Apple stocks they occur chiefly at the base, that is to say, they develop at the wound left when the stock is removed from the parent stool. Galls may appear, however, above the base and also on the roots. They have also been found on young Apple trees raised from seeds; in the case of these seedlings there was no evidence that wounds were necessary for gall development. The cells of Apple galls contain numerous starch grains, and it would appear therefore that foodstuffs accumulate there that should have been utilised in other directions. Organisms have been isolated from Apple galls and inoculation experiments carried out with them on Apple stocks have produced in some cases what appear to be young galls. Evidence as to the effect of Crown gall on nursery stock in this country is at present lacking. An experiment carried out at Wye on plants of Chrysanthemum coronarium showed, however, that the galls had an adverse effect on the vigour of the plants.

Experiments carried out at the East Malling Research Station have shown that on Paradise Apple stocks the development of galls can be largely prevented if care is taken to avoid unnecessary injury when the stocks are removed from the "stools" and subsequently planted up; coating the cut end of the stocks with a protective substance (such as Stockholm tar or grafting wax) reduces the number of basal galls.

Miss W. Ridler next gave an account of "The fungus present in Lunularia cruciata." Thalli of the Liverwort contain a fungus which occurs in a definite strand of cells along the thickened median portion or midrib, towards the ventral surface of the thallus. The fungus is characterised by the formation of arbuscles which later degenerate into sporangiole; the consequent distribution of the fungus is thus restricted and the fungus is prevented from becoming harmfully parasitic. A fungus was constantly isolated from the thallus and identified as a species of Phoma, but proof that this is the true endophyte is still lacking.

Mrs. N. Alcock exhibited Polystictus versicolor, which was apparently parasitic on Apple (Newton Wonder grafted on Cox's Orange), and Miss E. M. Wakefield demonstrated the differences between Fomes applanatus and Fomes fomentarius.

In the afternoon Dr. A. S. Horne and Dr. W. Brown gave a joint communication on "Fusarium." The former first dealt with the more systematic side of the research. The unsatisfactory nature of the criteria hitherto used in the specific determination of species of Fusarium has rendered necessary a reinvestigation of the genus under more accurately standardised conditions than those employed hitherto. Results of fundamental importance have been obtained not only in relation to the systematics of Fusarium, but also in connection with the chemical inter-relationships existing between these fungi and their respective hosts. A new section of the genus has been established possessing certain distinctive morphological and physiological characteristics, notably in relation to the occurrence of sclerotia, chlamydospores, colouring principles, relation to active hydrogen, gallic acid, and so forth. Certain other features such as spore shape, dimensions and septation have proved exceedingly variable, and hence of less relative value in classifying the species. The naming of the individual strains included in this section is a matter of difficulty owing to the frequent occurrence of "sectoring" in the cultures which has resulted in an increase in the number of strains from six to about fourteen. All the strains of the section are capable of parasitising the Apple Cox's Orange Pippin, and, under certain seasonal conditions Bramley's Seedling, causing spotting and subsequently rotting under storage conditions. Dr. Brown followed with an account of experiments on the growth rate and other cultural features of the same series of Fusarium strains. Certain strains had strongly pronounced "staling" features, others less so, and this character could be used as an aid in distinguishing the various strains from each other. The influence of the composition of the nutrient medium on cultural characteristics—colour development, intensity of sporulation or of mycelial development, etc., was studied, and it was stated that practically any cultural characteristic could be developed in any one strain by suitably choosing the composition of the various constituents in a particular synthetic medium described. Hence the necessity of standardising the cultural medium in work dealing with this very variable fungus. The degree of septation of the spores may also be varied at will within wide limits by a suitable choice of nutrient medium. In the one strain which has been examined in detail in this respect, a close co-relation was shown to exist between the degree of septation of the spores and the degree of staling in the culture of such a type that the stronger the staling of the colony, the lower the degree of septation of the spores.

Mr. J. Ramsbottom gave the first part of a paper dealing with the relation between M. J. Berkeley and C. E. Broome. These two workers were in close correspondence for over forty years, and the authority "B. and Br." is one of the best known combinations in mycology. The present communication treated briefly of the history of British mycology, and of its condition when Berkeley commenced his studies, and traced how he began to specialise in fungi directly as a result of W. J. Hooker appealing for assistance in preparing the two volumes dealing with Cryptogams in continuance of Sir J. E. Smith's *English Botany*. Broome's acquaintance with Berkeley commenced by his sending some algae and microfungi for identification on the advice of his friend Leonard Jenyns.

BRITISH FLORISTS' FEDERATION.

The sixth annual general meeting of the members of the British Florists' Federation, held at the Connaught Rooms, Great Queen Street, on Monday, 29th ult., was well attended and proved a very interesting and successful gathering. The report of the committee for the year of 1922 contains reference to the peculiarities of that year from the point of view of the effect of climate upon flower crops. A special note was made of the great loss sustained by growers owing to the brilliant sunshine and almost tropical heat, which forced the May-flowering Tulips into bloom and reduced their season to a few days instead of a few weeks. Reference was also made to the successful work of the Federation in connection with the reduction of rates for the carriage of pot plants by rail; to the successful negotiations carried out on behalf of stand-holders in the Covent Garden Flower Market concerning the new leases; to the Hague Conference; and to the success which attended a meeting of members of the Federation and others with the Dutch pathological authorities, which resulted in special facilities being afforded to bulb-forcers in this country. Kindly reference was made in the report to the admirable service rendered to the members of the Federation by Mr. A. W. White, who has served as president during a period of two years. The financial position of the Federation appears to be quite sound. Subscriptions for the year amounted to £234 16s. 6d., and the balance carried forward to the present year is £12 0s. 4d., as compared with a balance of £6 17s. 1d. brought forward from 1921. The president (Mr. A. White) made reference to the principal matters in which the Federation had rendered special service to its members, and moved the adoption of the report and accounts as presented. This was seconded by Mr. W. Cull and carried

Two new members were elected, on the motion of Mr. R.A. Jones and Mr. R. S. Cobley, The officers and members of the committee were thanked for their services, and on the proposal of Mr. G. Monro and Mr. Robbins, Mr. W. H. Page was unanimously appointed president for the ensuing year. The retiring members of committee were all re-elected, and Mr. A. W. White was appointed to fill the vacancy arising by the elevation of Mr. Page to the presidency, whilst Mr. Hannibal was elected to fill the vacancy caused by the death of Mr. W. G. Innes.

At the conclusion of the general business tea was served, and Mr. G. Shawyer opened a discussion on "Flower Packages and Packing." He dealt at considerable length with the various sizes and weights of the trunks and boxes used to send flowers to market in, and urged that a light, strong and attractive box, together with suitable and attractive paper and with first-rate packing, all helped to improve the sale of flowers. He urged that efforts should be made to standardise packages; that the question of weight should receive more consideration than hitherto; and that it was a foolish policy to economise with regard to the paper used for packing. With regard to the flowers themselves, Mr. Shawyer pointed out that it was essential to cut the flowers before they were fully open and to place the stems in water immediately after they were cut. The grower should aim at having his flowers placed in the hands of the ultimate customer just before they were in their best possible condition. Packing the flowers in a cool shed, the use of paper which would reduce transpiration, and even, during hot weather, the dipping of the boxes in water a little while before the flowers were packed, all tended to give the blooms a chance of reaching the customer in the best possible condition. Regularity of supply was considered a matter of very great importance to the grower, and he considered it much better practice to cut flowers before they were ready, rather than hold them back in anticipation of a better market. Further, Mr. Shawyer urged growers always to consider the advice of their salesmen with regard to supply and demand. A keen discussion followed Mr. Shawyer's observations, in which Mr. G. Monro, Mr. R. H. Page, Mr. Hutchings, Mr. Artindale, Mr. Ladds and Mr. Ingamells joined. Mr. Ladds made a special point of the proper bunching of flowers, and especially Chrysanthemums, and he observed that the flowers bunched by one of his packers invariably obtained higher prices than those bunched and packed by other members of his staff. A vote of thanks to Mr. Shawyer and to the president concluded the proceedings.

The fourth annual dinner was held at 6.15 p.m. in the Connaught Rooms, at which there was a large attendance. Mr. W. H. Page presided, and Mr. A. Bird arranged a delightful musical programme. The principal items on the programme after the royal toasts were: "Success to the British Florists' Federation," proposed by Mr. W. H. Page and responded to by Mr. Alfred W. White; "The Ladies," proposed by Mr. T. H. Windle and humorously responded to by Mr. F. Ladds; "Our Industry," proposed by Mr. G. Monro, to which Mr. J. Lambert responded. Other toasts included "The President" and "The Secretary." The president heartily thanked Mr. Bird for the excellent programme of music he had arranged.

NATIONAL HARDY PLANT.

At the annual general meeting of this Society, held the 30th ult., Mr. Giffard Woolley was unanimously elected chairman for the coming year, in succession to Mr. Bouskell, now elected president of the Society. Mr. A. J. Macself, of Dactylis, Clifton Park Road, Caversham, Reading, was re-elected hon. secretary, and Mr. Gerald Hillier (20, Tavistock Street, Covent Garden, W.C.2) was appointed assistant secretary.

It was decided that a number of silver and bronze medals should be allotted to Horticultural Societies for award in 1923 to meritorious exhibits of hardy plants. Societies desirous of obtaining these medals should write to the Hon. Secretary as soon as possible. The accounts showed a balance in hand at the end of 1922 of about £45, and the Hon. Secretary reported a gratifying increase of membership. So great, he said, had been the flood of correspondence recently from those interested in the doings of the Society, that he had been unable to keep pace with it. Suitable arrangements have now been made, however, to ensure that future inquiries have prompt attention.

An important item of the Society's programme for 1923 is the periodical issue of a *Journal*, detailing the Society's activities and giving information with regard to new or specially noteworthy hardy plants. A large influx of new members is needed and confidently looked forward to. The minimum annual subscription is only 7s. 6d.

NATIONAL CHRYSANTHEMUM.

The annual general meeting of members of the National Chrysanthemum Society was held in the Lecture Room of the Royal Horticultural Hall, Westminster, on Monday, February 5. There was a very fair attendance, over which Mr. E. F. Hawes presided. The committee's annual report and statement of accounts for the year 1922 were presented, and from the former we gather that the society has had a very successful year. The show held in November last was in every way a success, proving that cultivators have not lost either skill or enthusiasm. Once again the society published its *Transactions*, which proved of interest to all members. It also presented a very handsome cup to the Royal Horticultural Society, to be offered for the best exhibit of Chrysanthemums at the Holland Park Hall show. This fine cup was won by Mr. H. J. Jones. The report also shows that raisers have renewed their activities, and that the Floral Committee had a busier season than for many previous years. Nearly one hundred and fifty novelties were submitted, and thirty-nine of these were awarded the high honour of a First-class Certificate. Thanks are tendered to the Floral Committee for its services, and to the many generous friends who contributed to the prize fund. The one unhappy feature of the year so far as the society was concerned was the death of its president, Sir Albert Rollit, who for a long number of years showed a keen interest in the society's work and in many ways contributed to its success. The accounts show that the society has a reserve fund of £50, and, in addition, carries forward a balance of £23 11s. 11d., which shows a material increase as compared with the balance brought forward from the previous year. On the motion of Mr. John Green, seconded by the Chairman, the report and accounts were adopted

The meeting then proceeded to elect officers and committee for the ensuing year. The nomination of Sir Jeremiah Colman as president was received with applause, and he was unanimously elected to that position. Mr. E. F. Hawes was reappointed chairman of committee, and Mr. D. Ingamells as vice-chairman; Mr. J. Green was also reappointed hon. treasurer, and Mr. C. Harman Payne (for the thirty-fifth time) reappointed hon. foreign corresponding secretary; Mr. C. H. Curtis was reappointed general secretary and editor; while Messrs. R. A. Witty and S. J. E. Bayly were reappointed as auditors and heartily thanked for services rendered. At the close of the business proceedings, Mr. C. Harman Payne referred to the Chrysanthemum show in Paris last year, which, he said, did not compare at all favourably with the very fine exhibition held at Le Mans the previous year. A vote of thanks to the chairman concluded the proceedings.

READING AND DISTRICT GARDENERS'.

The fortnightly meeting was held on Monday evening last, in the Recreation Club Room, Abbey Hall, when Mr. A. H. Fulkes presided over a large attendance.

The subject for the evening was "Popular Perennials for Exhibition and Garden Decoration." and the lecturer was Mr. J. C. House, Westbury-on-Trym, Bristol, a well-known trade grower and exhibitor of herbaceous perennials. In his opening remarks he clearly defined hardy perennials, herbaceous perennials and bulbous and corm-rooted plants. He dealt fully with the growing of perennials for exhibition purposes and recommended the best varieties that would prove useful for showing from the middle of July to the end of September, such as the Moon Daisies, Delphiniums, Gaillardias, Heucheras, Oriental Poppies, Phloxes, Pyrethrums, Rudbeckias, Scabiosa caucasica, etc. Valuable hints on staging and the packing of flowers were also given.

A most interesting and instructive discussion followed, in which Messrs. Fulkes, Young, Blackwell, M. Goddard, Cook, Hunt, Townsend, Carter, F. Cox, and E. R. James took part, the last speaker proposing a hearty vote of thanks to Mr. House for his interesting and educational lecture.

The Association's Award of Merit for cultural skill was awarded to Mr. W. Sharpe, The Gardens, Sidmouth Grange, for a pretty group of Primulas. Mr. J. Hunt, of Calcot, exhibited some good blooms of double Violets. Seven new members were elected, making twenty-five already added to the list this year.

At the annual meeting of this Association, held recently, the president (Mr. Councillor F. E. Moring) presided. The annual report and balance sheet, as read by the hon. secretary, showed that the Association was in a most flourishing condition. The lectures were varied and exceedingly practical, the discussions helpful and well sustained, while the attendances were far in excess of previous years. The exhibits of vegetables, fruit and flowers were well up to the general standard, and the competitions were keenly contested and created a great amount of friendly rivalry. The membership had steadily increased and the financial position was very strong, indeed, it has reached its highest point since the Association started in 1888.

The officers elected for 1923 were :—President, Mr. Councillor Frank E. Moring; vice-presidents, Mr. Alderman F. B. Parfett, Mr. Leonard Sutton, and Mr. E. P. Foquett Sutton; hon. treasurer, Mr. A. H. Leader; chairman, Mr. A. H. Fulkes, The Gardens, Elmshurst, Reading; vice-chairman, Mr. M. Goddard, The Gardens, Bear Wood; hon. secretary, Mr. H. G. Cox; hon. assistant secretary, Mr. E. J. Dove; committee, Messrs. E. Blackwell, F. Townsend, D. Turner, T. Martin, H. Reeves, H. C. Loader, C. Moulton (Reading), H. H. Cook, A. J. Cobb, J. R. Lloyd (Shinfield), W. Chislett, T. Butcher, J. Young (Wokingham), H. Goodger, F. Goodger (Calcot), J. Wynn (Checkendon), H. Wynn (Goring Heath), G. Carter (Mapledurham), F. J. Green (Aldermaston), and F. Alexander (Theale).

NEWCASTLE HORTICULTURAL MUTUAL IMPROVEMENT.

At the Newcastle-on-Tyne Horticultural Mutual Improvement Society's monthly meeting, held on the 23rd ult., Mr. W. E. Anderson, gardener to Sir James Knott, at Close House, Wylam-on-Tyne, gave a practical and instructive address on "Fruit Growing in the North." In his address Mr. Anderson dealt with the culture of Apples, Pears, Plums, Peaches, Nectarines and Quinces; in his opinion the latter end of October was the best time for planting the trees, but it should not be done in wet weather; jagged and bruised roots should be cut back, and the trees staked at once, after planting. Summer and winter pruning of the different kinds of fruits should receive strict attention. He referred to the careless way in which wall trees were neglected with regard to watering, and he considered that several times during the season it was necessary to give them an abundant watering followed by mulching. The speaker expressed the hope that the county instructor and the Newcastle Horticultural Society would give pruning demonstrations that would stimulate interest and improve confidence in those who desired to grow fruits but hesitated on account of lack of knowledge.

A hearty vote of thanks to the lecturer was heartily given by the large company present.

Obituary.

John Hay.—It is with profound regret that we have to announce the death of Mr. John Hay, gardener to His Grace the Duke of Northumberland, at Alnwick Castle, at the comparatively early age of thirty-eight. Mr. Hay was ill for only a few days, and not until four days before his death was the serious nature of his malady realised. He began his gardening career under his father, a well known gardener and exhibitor in the South of Scotland, where was laid the foundation of his success as a grower and exhibitor. He afterwards went to Welbeck Abbey Gardens, training under Mr. J. Gibson for several years. Thereafter, he transferred to the Royal Gardens at Windsor, where he served under Mr. A. McKellar for three years. From Windsor, he accepted a post in France, returning after a short time to take up an appointment as gardener at Locko Park, Derbyshire, whence, at the outbreak of war, he joined the Army and was in military service for the greater part of the war. His service was in the R.G.A., in which he rose to commissioned rank, and about the time of the termination of the war he was appointed gardener at Alnwick Castle. His funeral was attended on Saturday last by a large company, amongst whom was a representative body from the local flower show committee, of which he was a member, and also many of the estate officials. He leaves a widow and one child, to whom we offer our deep sympathy.

TRADE NOTES.

A meeting of the Parliamentary and Transport Committee of the Chamber of Horticulture was held at 18, Bedford Square, on the 25th ult., Mr. G. W. Leak (President) in the Chair. The Secrtary submitted a case, drafted by Mr. Seymour Cobley on behalf of the Spalding Bulb Growers' Association, making application for a reduction of railway rates on cut flowers conveyed by passenger train. The case was examined by the Committee, and Mr. Leak, speaking for the Wisbech district, said that similar conditions prevailed there and that the Wisbech Growers had asked to be associated with the Spalding growers in their application. Mr. Cobley promised to verify the many facts and figures, and to let the Secretary have the completed case for preparation, to be brought again before Committee. The Railway Clearing House is then to be approached with a view to receiving a deputation consisting of two growers from the Spalding area, two from the Wisbech area, and the Secretary.

In accordance with instructions from the Council, the Committee examined the Horticultural Legislative Programme with a view to bringing the same up to date for presentation to the new Parliament. In addition to the existing items in the programme the Committee recommended the provision of State Credit Banks for the assistance of horticultural traders in times of depression.

The question of a Horticultural Committee in the House of Commons was debated, and it was decided to recommend the Council to proceed with the formation of the same, it being considered advisable to deal with horticultural legislative measures in this manner rather than by way of a horticultural section of the Agricultural Committee.

THE LATE MR. JOHN HAY.

Mr. Jackman asked the Committee to consider again appealing to the Railway Rates Tribunal as to the re-classification of shrubs and plants. The new classification made by the Tribunal a year ago as to these commodities is not considered sufficient to meet the traders' case. The request of traders in this matter is thought to be very fair and reasonable, and it was agreed to state the case before the Tribunal in due course. The Railway Companies have been approached as to this without avail.

ANSWERS TO CORRESPONDENTS.

Average Yield and Prices of Oats: *L. J. F. R.* You do not state whether the Oats are spring-sown or autumn-sown. The latter yield a much heavier crop in the south; whilst in the north of England and Scotland farmers rely on those spring sown as yielding the heavier crop. Nine quarters per acre of grey winter Oats would be a fair average yield in the south, while a spring-sown crop would yield about seven quarters. It is difficult to give a definite price per acre for unharvested Oats; so much depends on the crop, and, taking the risks of harvesting, from £6 to £8 would be a fair price.

Copper Sulphate and Pond Weeds: *Charles A. Pelham.* The effect of copper sulphate on weeds in lakes is limited and temporary. For instance, it will only kill the smaller weeds and those of the lower orders of vegetation; also water cleans itself in time. Large weeds with stems and leaves would not be killed. Some of the more persistent ones, such as Bullrushes and the floating Polygonum, need to be dug out. Pond weeds (Potamogeton) and others may be kept down by swans and geese. Duckweed and water Algae may be acted upon by sulphate of copper, and as these are growing by June, it would be a great check to use the remedy at that time, even if you were to repeat the application in August. Weeds of this character are liable to get very dense by August on and in still water, so that an early application of the specific would prevent the dense growth later.

National Diploma in Horticulture: *A. H.* You will probably have to sit for the qualifying test, as you infer. If you could attend classes in botany, chemistry, physics or any of the sciences which have a bearing on gardening, this would be valuable help to you, and probably be all you require, as, your experience in gardening being very general, you would no doubt be able to pass a practical test with ease, as well as answer the practical questions satisfactorily. In this connection you might find it of use to practise answering questions, or even to attend a class in dictation and composition, so that you might learn to express yourself tersely and clearly.

Weed on a Pond: *H. C.* We do not understand what you mean by ordinary Cress. If you refer to Water Cress, the plants could be raked out of the pond and easily kept in check by that means. You may, perhaps, refer to Lemna, or Duck Weed. This pond weed rises to the surface, and may be scooped up with a net, or you may introduce wild fowl to keep it under, ducks being especially fond of it. You will find a lengthy reply to a correspondent *re* weeds on a pond in *Gard. Chron.*, October 28, 1922, p. 260.

Weeds on a Hard Tennis Court: *J. W.* Judging from our experience you will find the chief trouble arise from such weeds as Thistle and Docks, which penetrate the hard surface of the court, and make ugly patches. If you take special precautions to dig up the roots of any of these strong perennial weeds and strip off the turf, if you are making the court on grass land, you should have but little trouble with the weeds afterwards. In order to make doubly sure, you might apply a good dressing of one of the proprietary weed-killers, which have as their basis a compound of arsenic.

Communications Received.—J. F. D.—P. A. G.—G. J. L.—H. W. S.—J. R.—R. W. I.—A. G.—R. P. B.—H. L.—C. A. P.—R. C. N.—G. F. H.—J. C.—W. A.—F. G.—A. & B.—H. J.—F. W. J.—E. A. B.

GARDENING APPOINTMENTS.

Mr. Wm. McCombie, for the past eighteen months Gardener at Redworth Hall, Darlington, as Gardener to J. E. Tully, Esq., Newton Hall, Stocksfield-on-Tyne, Northumberland. (Thanks for 1s. for R.G.O.F. Box.—Eds.)

Mr. Charles Bolus, previously Foreman at Paddockhurst, Sussex; Chirk Castle, Denbighshire; and King's Walden Bury, Hitchin, as Gardener at Weston Park, Stevenage, Hertfordshire. (No P.O. enclosed.—Eds.)

Mr. P. J. Gilks, formerly Gardener to the late Samuel H. Keeling, Esq., of Parkfield, Kenilworth, Warwickshire, as Gardener to Robert Whitehead, Esq., Hargate Hall, Millers Dale, Derbyshire. (Thanks for 1s. 6d. for R.G.O.F. Box.—Eds.)

CATALOGUES RECEIVED.

Hurst and Son, 152, Houndsditch, E.1—Bulbs (Wholesale).

Keith Luxford & Co., Sheering Nurseries, Harlow.—Chrysanthemums.

C. Engelmann, Saffron Walden.—Carnations.

Carter, Page & Co., Ltd., 52, London Wall, E.C.—General.

Morle & Co., Ltd., 150, Finchley Road, N.W.—Roses, Trees and Shrubs.

Maxwell & Beale, The Dorset Nursery, Broadstone, Dorset.—Alpine and Rock Gardens, Moraines, and Herbaceous Borders, etc.

Seeds.

G. H. Plant & Co., Bank Buildings, The Eastgate, Chester.

Wm. Power & Co., Waterford.

THE
Gardeners' Chronicle
No. 1886.—*SATURDAY, FEB.* 17, 1923.

CONTENTS.

Aberdeen University, forest lands for ... 86
Alpine garden, the—
  Erythraea Massonii 91
  Synthyris reniformis 91
Apples and Pears at Gunton Park, late ... 94
Apples, stored 95
Association of Economic Biologists ... 85
Auton, Mr. W. ... 86
Bagatelle 85
Bermondsey, new garden superintendent for 86
Big bud, experiments to destroy 85
Botanic painters, early 92
Chelsea show in 1924 ... 86
Florists' flowers—
  Late Chrysanthemums 94
"Gardeners' Chronicle," seventy-five years ago 87
Grafting 87
Greenhouse plants at Reading 91
Horticultural societies, local 86
Horticulture in the Isles of Scilly, commercial 94
Indoor plants— 93
Lettuce, new disease of 86
Lilies in 1922 86
Lilium sulphurgale ... 90
Loudon, Jane 95
Obituary—
  Cannon, George ... 98
  Winter, Thomas ... 98
Orchid notes and gleanings—
  Brasso-Cattleya Hannibal var. Helen ... 90
  Potinara Juliettae ... 90
  Vanda tricolor insignis 90
Orphan FundGardeners' Royal 95
Societies—
  Egham Hort. ... 86
  Royal Caledonian Horticultural ... 96
  Royal Horticultural 96
Trees and shrubs—
  Heaths, some uncommon 89
Pyrus toringoides ... 89
Week's work, the ... 88
Wenman, Mr. W., retirement of 85

ILLUSTRATIONS.

Auton, Mr. W., portrait of 86
Bourdichon's figures of the Black Currant 92
Camellia Jupiter 93
Fruit exhibit at the Stafford Fruit Show 95
Primula malacoides, 91 ; P. sinensis, The Pearl, 91 ; P. stellata GiantWhite 87
Pyrus toringoides, fruiting branch of 89

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.3°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 14, 10 a.m. Bar. 30.2, temp., 40.° Weather—Raining.

The Effect of Cold on Plants.

Of recent years our winters have been so mild that garden plants have suffered but little from the effects of frost. Nevertheless, gardeners of long experience can recall seasons when cold has wrought great havoc in gardens, and it is only reasonable to expect that like misfortunes will occur again. It is, therefore, of considerable practical interest to inquire into the effects of cold on plants with the object of ascertaining whether means may be taken to minimise them. There is ample evidence to show that when a plant is exposed to low temperatures its cells lose the power of retaining the water contained in the cell sap. The living membrane which forms the outermost layer of every living cell acts as a regulator of the amount of water which each cell contains. When the plant is subjected to low temperatures this membrane loses its power of retaining water within the cell. It becomes more permeable and water passes out from the cell into the intercellular spaces. The change of colour and of texture of frozen leaves is an indication of this excretion of water. If the fall of temperature is not so great as to disorganise the living substance, the water excreted may be re-absorbed as the temperature rises again and the leaf may resume its normal colour and suppleness. There is evidence to show that the limiting layer of the cell protoplasm may undergo changes which enable it to resist to some extent the effects of cold. This happens in the hardening of plants. In this process plants are kept on the dry side and, instead of being coddled in a frame, are exposed freely to the air. In the course of a few days they become capable of resisting low temperatures which would have been fatal to them in their soft state. Recent researches* have shown, however, that the root system of a plant is peculiarly important in determining the powers of resistance of a plant to cold; although this is known in a general way to gardeners, the facts elucidated by these investigations are so interesting that they deserve to be studied carefully. In the first place it has been demonstrated that soil conditions have an important effect on the plant's resistance to cold. If the soil be acid or if it be liberally supplied with phosphates, roots become more resistant, but if it be alkaline or rich in nitrogenous manures they become more susceptible to cold. In the second place it has been shown that the most serious effects of cold are produced not by exposure of the stem, but by exposure of the roots to low temperature. Thus, in a series of experiments in which the stems only were exposed to low temperature, although their leaves wilted, the plants recovered when the temperature again became normal; when both root and stem were exposed to a similar low temperature, recovery was much slower; but—and this is the most curious point—if the roots only were subjected to the low temperature the stems withered and did not recover. The observation is difficult of explanation, but it may be suggested that the exposure of roots only to low temperature interrupted the supply of water from root to stem and that when the normal temperature was restored, this interruption continued. The leaves, however, continued to lose water by transpiration, and that loss, not being made good by supplies from the root, resulted in the withering of the plant. From a practical point of view it would therefore seem that when cold weather is to be anticipated, a loose mulch at the roots of tender plants should prove the most efficient means of protection and that the wrapping-up or covering of the stems and leaves is, except, perhaps, of plants which are so tender as to be killed outright by frost, unnecessary and possibly harmful. Needless to say, it is always dangerous to generalise from the results of a limited number of experiments, but without risking disaster it should be easy for gardeners to test the correctness of these views on subjects the loss of which would not be too grievous. In any case, one may see in these observations justification of the garden practice of giving root protection to subjects of doubtful hardiness, and possibly a more general practice of this method might help to maintain in more exposed situations many garden plants which usually have to be accommodated by the shelter of a wall.

Experiments to Destroy "Big Bud."—In the annual report of the Crichton Royal Institution, Dumfries, where experiments are carried on by the directors in connection with agriculture and horticulture from year to year, the work done in the gardens receives full consideration. Mr. E. Joss has been in charge of the gardens for a number of years. Among other experiments has been one to endeavour to combat big bud in Black Currants. This has been suggested and carried on under the supervision of Sir George Watt, K.S.I., who is convener of the gardens committee, and details of the experiments appear in the report. It is stated that this pest attacked the Black Currants at the Institution about eight years ago, and all known remedies were applied without success, including burning the branches. In this experiment, however, the ground in the plot was quite covered with Wheat straw and dead branches, and these were ignited on March 28, 1922. Soon afterwards the ground was again covered with straw and the branches of the bushes, which were cut off to within six inches of the soil, were laid upon it and the whole burned. Less than 10 per cent. of the bushes were killed by the fire, and upwards of 90 per cent. made growths of from two to three feet of clean, healthy wood, very promising for the year 1923. It is as yet too early to know the final results of the experiments, which will be followed with keen interest by growers.

Chelsea Show in 1924.—Considerable difference of opinion regarding the venue of the Royal Horticultural Society's great spring show in 1924 has arisen among those horticultural traders who are the chief exhibitors at the Chelsea shows. There is a desire on the part of certain traders that the Royal Horticultural Society should support the British Empire Exhibition by holding its spring show at Wembley next year, but, so far as we were able to gather at the meeting of exhibitors held at the Royal Horticultural Hall on Tuesday, the 13th inst., the Wembley authorities have not approached the R.H.S. Council in regard to such a change of site. It appears, however, that at a previous meeting, held at the offices of the Board of Trade, promises were made to the effect that the R.H.S. Council would be indemnified against any loss of profit if the spring show were held at Wembley. Not all the facts are before us, nor were they before the meeting on Tuesday last—probably as a result of the indirect method of approach—therefore Mr. Lobjoit's appeal for an adjournment of the proceedings, so that facts and figures concerning both Wembley and Chelsea, might be brought forward by the respective authorities, was a wise one. Those present, however, were in no mood to postpone the opportunity of expressing an opinion on the subject, and eventually Mr. C. Musgrave, who presided, accepted such an expression by way of recommendation to his Council; the voting in favour of the show being held at Chelsea in 1924 was forty-five against fifteen.

Bagatelle.—This place, of late years, has had an increasing interest for English rosarians, and its history dates back for many years. We notice in a recent issue of M. George Truffaut's excellent publication, *Jardinage*, a most interesting illustrated article on the gardens and residence of Bagatelle. The illustrations depict a water scene, hardy plants, festoons of Roses and a pergola of Roses. The article is from the pen of Baron Hennet de Goutel.

Association of Economic Biologists.—At the general meeting of this association to be held at 2.30 p.m., on Friday, February 23, in the Botanical Theatre of the Imperial College of Science, Prince Consort Road, South Kensington, Sir John Russell (Director of the Rothamsted Experiment Station), and Mr. H. G. Thornton (Head of the Bacteriological Dept. at Rothamsted), will open a discussion on "Partial Sterilisation of Soil: Present Views as to its Effects and their Causes."

Retirement of Mr. W. Wenman.—We regret to learn that as a consequence of ill-health Mr. W. Wenman has retired from the position of gardener to Viscount Halifax at Hickleton Hall, near Doncaster, Yorkshire. The charm and beauty of Hickleton Hall gardens and grounds are well known in the Doncaster district, and they are due in no small degree to the remodelling the grounds have undergone during Mr. Wenman's forty-four years of service. We understand that Viscount Halifax has recompensed him for his long and faithful services, and we are also glad to learn that Mr. Harry Wenman, for the past eleven years in charge of the gardens at Templenewsam, is to succeed his father at Hickleton Hall.

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* "The Influence of Nutrition and Root Activity Upon the Collapse and Desiccation Produced by Cold." Pantanelli, in the *Resoconti della Reale Academia dei Lincei*, Vol. XXIX., part 5. Rome. Abstracted in *International Review of Science and Practice of Agriculture.* Vol. XII. Part I.

Lilies in 1922.—It should have been mentioned that the reproduction of the photograph of the type specimen of L. Davidii in the herbarium of the Jardin des Plantes (Fig. 37), was published by the kind permission of the director. The photograph of the creeping stem of L. Duchartrei, at Highdown (Fig. 36), was taken last year, and that of L. Thayerae (Fig. 39), in Mr. Grove's garden, in 1911. The latter shows a particularly robust specimen of this Lily, and would-be growers cannot expect to have it always so floriferous.

Forest Lands for Aberdeen University.—Arrangements have been concluded by the Forestry Commissioners for the acquisition of some six hundred and fifty acres of land, within five or six miles from Aberdeen, which should prove of great service to the Forestry School of Aberdeen University. One area comprises the estate of Kirkhill, which marches with the estate of Craibstone, already in the possession of the University authorities, and extends to five hundred acres. With the Craibstone woodlands this will make a compact block of some seven hundred and fifty acres. The area has been acquired under a long feu from the Countess of Southesk. The Commissioners have also acquired about one hundred and fifty acres of woodlands on the estate of Parkhill, which is in close proximity to the larger area. Much satisfaction is being expressed in forestry circles over the transaction, for, although a long time will elapse before the woodlands are properly developed, they will make an excellent demonstration area for the Forestry Department of the University. The Commissioners are to lay out the woodlands in such a manner that they will be entirely suited for this purpose. Farther north, too, the Commissioners are acquiring stretches of woodlands. The lands of Teindland, Orton, Morayshire, have been feued from the Duke of Richmond and Gordon, who is also Chancellor of Aberdeen University. The Orton district is considered one of the finest Scots Pine areas in Scotland, and it was from this quarter many trees of over 100 feet in height were cut down by Canadian lumbermen during the war period.

A New Disease in Lettuce.—In an address before the members of the Beckenham Horticultural Society, Dr. Wormold, of the South Eastern Agricultural College, Wye, stated that a new disease has lately appeared in Lettuces, which has only been recognised during the past few weeks. The first appearance of the disease is brown spots, which later turn whitish, and gradually spread to the base. Mr. Wormold invited anyone who has experienced the disease to send information to the Agricultural College, Wye.

New Garden Superintendent for Bermondsey.—Mr. William Henry Johns, Horticultural Superintendent of the Cornwall County Council, has been appointed superintendent of the gardens and open spaces of the Metropolitan Borough of Bermondsey, in succession to Mr. W. H. Aggett. Mr. Johns takes up his duties on March 30. Much tree-planting has been done in the public roads of the borough; at the present time twenty-six additional streets are being planted with trees.

Egham Mutual Improvement Association.—This Association has arranged an exceptionally interesting programme for the present year, including an annual outing to Waddesdon Manor on July 26, an evening visit to Langley Park, Slough, on June 7, and another evening visit to West Hall, Byfleet, on August 9. Three of the lectures are under the auspices of the Surrey Education Committee. These commenced on February 7 with "Natural Habits of Garden Plants," by Mr. W. H. Divers, and will be continued on February 21 and March 7 with lectures on "Horticultural Research," by Mr. A. E. Burgess, and "Chemistry of the Garden," by Mr. G. Johnson. Other lectures to be delivered include "Annuals," on March 21, by Mr. R. Birch, of Messrs. Carter and Co.; "Evolution of Orchid Culture" (April 4), by Mr. W. P. Bound; "Bee-Keeping," by Mr. W. G. Judge (October 3); "Hardy Fruits," by Mr. G. Carpenter (October 17); "The Sweet Pea Trials of 1923," by Mr. A. J. Cobb, University College, Reading (November 7); "Fruit Tree Stocks and their Relation to Fruit Trees," by Mr. Laurence J. Cook, of Messrs. Stuart Low and Co. (November 21); and "The Chemistry of the Garden" (December 5), by Mr. W. Auton, The Gardens, Pyrford Court, Woking. May 2, September 5 and December 19 are down in the programme as Question Nights.

Mr. W. Auton.—Mr. W. Auton belongs to the younger generation of gardeners, but he has already established a reputation as a skilled craftsman by the excellence of the gardening at Pyrford Court, Woking, where he has been gardener for several years to Lord Elveden. He comes from a gardening stock, for his father was gardener at Compton Park, Salisbury, and early in life he showed a keen interest in horticulture, so that his father gave him every encouragement to follow his chosen profession. as soon as he finished school he joined the garden staff at Compton Park and remained there for two years, his wages being from 2s. and 3s. per week respectively, a remuneration that seems ridiculously small for a lad of fourteen when the present wages for youths are considered. He had the good fortune to secure a position under Mr. Wythes at Syon House, Brentford. The late Mr. Wythes, as is well known to the majority of our older readers, was a splendid craftsman and excelled especially in the cultivation of fruits and vegetables, but Syon gardens contain a wealth of interesting plants and especially arborescent species, and the conservatory, filled in those days with Palms and other exotics, is one of the largest glasshouses in private establishments. Mr. Auton took full advantage of his opportunities, and he left to enter the Royal Botanic Gardens, Kew. At Kew he gained a wider knowledge of plants and public gardening, which fitted him to obtain a post in France at Férrieres, near Paris, and subsequently in the ex-Kaiser's Gardens in Berlin. After three years abroad, he returned to England, and was employed respectively at Gunnersbury Park Gardens and Worth Park Gardens. At the comparatively early age of twenty-eight he was sent by the late Mr. S. T. Wright to lay out a large garden in the English style for the late Count Lützon in Lower Austria, which he did to the full approval of his employer. Again he returned to England, and was for five years in charge of Lord Brougham's Gardens at Brougham Hall, Penrith. In 1912 he was appointed gardener at Pyrford Court, and assisted Lord and Lady Elveden in designing and developing their gardens, which are amongst the finest in Surrey. The gardens of Pyrford are still in the making, but already they include some charming features, and both Lord and Lady Elveden are keen amateur gardeners, so that the place contains many rare and choic plants of all kinds, and probably the finest natural Iris garden anywhere. Mr. Auton's abilities are recognised by his noble employer, who since 1921 has relieved him of the mere routine duties of the garden, and whilst he still retains the management, he is enabled to devote much of his time to research work, and is a present engaged in work in connection with organic manures as substitutes for farmyard manure. Mr. Auton is keenly interested in th two gardening charities, and is a member of th Committee of the Royal Gardeners' Orpha Fund. Recently he raised a considerable sum o money for the Gardeners' Royal Benevolen Institution and the Royal Gardeners' Orpha Fund, as stated on page 44.

MR. W. AUTON.

Treasurership of the United Horticultura Benefit and Provident Society.—Mr. Thoma Winter, who for the past ten years had bee treasurer of the U.H.B.P.S., having tendere his resignation owing to very serious illness Mr. Arthur Bedford, of Gunnersbury Hous Gardens, Acton, was elected treasurer pro tem at a special meeting held on February 7. I will be seen from our obituary column on p. 9 that Mr. Winter died a few days after tenderin his resignation.

Local Horticultural Societies.—The membershi of the Hythe Gardeners' Association increase during 1922 from sixty-four in 1921 to seventy four. The Society has had a successful year, an held a Sweet Pea meeting in July and an autum show in November. The Mayor of Hythe Councillor E. Osborne, was elected Presiden for the ensuing year.—Saltwood Cottage Gar deners' Society, which was founded about fort years ago, is one of the most flourishing gar dening societies in Kent. The sum of £4,00 has been obtained by fêtes organised on behal of the Folkestone hospital, and of that amoun the gardeners of Saltwood have contributed £400 The membership of the Society has increase during the past year, and the lectures and ex hibitions were all very successful. The autum show was stated to be the best ever held b the Society.—The South Oxford Horticultura Society more than doubled its subscriptions dur ing 1922. A debt of £7 8s. has been wiped ou and the Society has a balance in hand o £8 7s. 1d. At the annual meeting Lord Valen tia was re-elected President of the Society, an the Treasurer, Councillor A. J. George, an the Secretary, Mr. F. Bunker, were also re elected.—Bromley Chrysanthemum Society im proved its financial position last year, for a the commencement of 1921 the balance in han was £4 6s., but at the end of the year th balance was £14. The November show wa very successful, and exhibits were more nume rous than at any previous exhibition. The cha lenge cup presented by Sir Thomas Dewey, Bt. was won by Mr. A. B. Hudd, gardener to M L. E. Chalmers, Bickley, and becomes his pro perty. Mr. Hudd also won the Griffith ros bowl. Sir Coles Child has been re-elected Presi dent, and Mr. F. Andrews re-elected Secretary —Folkestone Gardeners' Society has arrange to hold a Sweet Pea and Rose show in July a new feature in the Society's programme. Th annual dinner of this Society was held recently and the Chairman, Councillor C. E. Mumford J.P., stated that the Society had become on of the most important institutions in the town —Limpsfield and Oxted Gardeners' Mutual Im provement Society has presented the Chairma of the Society, Mr. C. A. Fane, with a gol watch, inscribed "A token of appreciation fro the subscribers and members of the Limpsfiel Gardeners' Society, 1923." Mr. Fane, in re turning thanks, claimed that the Limpsfield an Oxted Gardeners' Society was one of the bes in Surrey. The President, Mr. E. Strong, ha presented a cup to take the place of the on won by Mr. Fane, to be competed for unde the same conditions. The summer show was no a success, owing to exceptionally bad weather but the autumn show was an unqualified success.—Keymer, Clayton and Hassocks Flower Show have finished the year 1922 with a balance in hand of over £13. The entries at the annual exhibition in August showed a large increase on those of recent years, and some excellent exhibits have been forthcoming at the monthly meetings. Mr. H. Peatfield was unanimously elected President, and he also holds the office of Treasurer.—Langford and District Horticultural Society is holding its flower show the first Thursday in September, 1923. The income during 1922 amounted to £241, and there is a balance in hand of £5 13s. 3d., which would doubtless have been larger but for wet weather on the occasion of last year's flower show.—We regret to learn that the Chrysanthemum show of the Ancient Society of York Florists is to be discontinued owing to a loss of over £86 on the exhibition held last year. Twenty-three new members were enrolled by this society in 1922, but losses due to deaths and resignations brings the membership to its previous figure. The Society has a new President, Mr. H. J. Wilkinson, who is a keen gardener and a great lover of flowers. Apart from the Chrysanthemum exhibition, the Society will hold three other shows during 1923.—Ashford Cottage Gardeners' Society has been in existence for nearly fifty years, and Mr. T. Frost, the Treasurer, the oldest member, joined forty-five years ago. The membership shows an increase during 1922, and the balance sheet was stated to be satisfactory. The summer show last year was one of the most successful held by this Society. —Warrington Garden Society has a membership of 736, and the Society is in the happy position of having a record balance of £114 3s. with which to commence the year 1923. There was a loss on the show of practically £120, but a special appeal put the Society's finances on a sound basis again. The weather on the occasion of the exhibition was very wet. Sir Gilbert Greenall has been re-elected President of the Society.

Appointments for the Ensuing Week.—Tuesday, February 20.—Winchester Horticultural Society's meeting. Wednesday, February 21.—Wimbledon and District Gardeners' Society's meeting. Thursday, February 22.—Royal Botanic Society's meeting; Wargrave and District Gardeners' Society's meeting. Friday, February 23.—Association of Economic Biologists meet.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Conservatory Climbers.*—Some years ago Mr. Beaton favoured me with his opinion, through the medium of your columns, respecting the merits of certain conservatory climbers, and, having profited by his advice, I am induced again to ask for fresh floral news from him, or some other correspondents, on the same subject. It is true that I was unable to follow his advice in erecting a hot pit at the back of my conservatory, to allow of the introduction of stove climbers in the summer; but, following his advice, I have bloomed Stephanotis floribunda in a tolerably satisfactory manner, while Beaumontia grandiflora is growing vigorously, though not yet in a blooming state. I trust, therefore, that this inquiry may lead to my obtaining something more this year that may rank with my old favourites, Bignonia Cherere and jasminoides, Mandevilla suaveolens, and Plumbago capensis. It is somewhat remarkable that, notwithstanding the vast number of new introductions, how few conservatory climbers are found to possess the merits of the plants I have enumerated; for many either produce minute blossoms, or have a coarse, seedy appearance, or are shy bloomers; this last fault, I am told, attaches to Tacsonia mollissima, which otherwise would be an acquisition, and the former is the characteristic of one or two curious New Zealand creepers. That fine thing, Echites splendens, I find, after a fair trial, far too tender for my purpose, but the still more lovely Dipladenia crassincda at present seems likely to answer; if it succeeds, it will be an invaluable conservatory climber. *A Devonian, Gard. Chron., Feb.* 12, 1848.

Publication Received.—*The Scientific Selection of Arsenate of Lead and its Combinations.* Free on application to Walter Voss and Co., Ltd., Glengall Road, Millwall, E.14.

GRAFTING.

Everyone who grows Apples, Pears, Plums, Peaches, Apricots or Cherries finds it desirable at times to graft or bud an undesirable variety with a better sort, or to test a seedling by grafting it on an established tree.

The cutting down and top-grafting of inferior varieties is too often neglected, especially in orchards, but it repays for the trouble and the trees soon form good heads again.

There are only two methods of grafting that my experience favours, and these are splice grafting and crown or rind grafting. The first is necessary when the scion and stock are of nearly equal thickness, and the latter when the stock is above three-quarters of an inch in diameter. In splice grafting, all that is necessary is to shape the base of the scion in a sloping manner and to cut the stock to exactly fit the scion, so that when the two are spliced together their edges on both sides are, for the greater part, together. In crown or rind grafting the top of the stock is cut off level and the surface made smooth with a sharp knife. A slit is then made in the bark, and after lifting the latter with a budding knife handle or other suitable implement, the prepared scion is pushed down into the slit, tied with raffia, and the place of union covered all over with wax or clay mixed with cow-dung. So far this procedure is no doubt fairly familiar to a great number of the readers of *The Gardeners' Chronicle*, but my practice differs from that usually employed, in that I make the cut surfaces very long, for I find it leads to a surer and firmer union than if they are short. My practice is to cut them not less than about three and a half inches, and I take particular care that a wood bud is left on the back of the scion, near the middle of the seat of the union of the graft and stock, so that if, after growth has commenced, the top part of the scion should be broken off, this bud starts into growth.

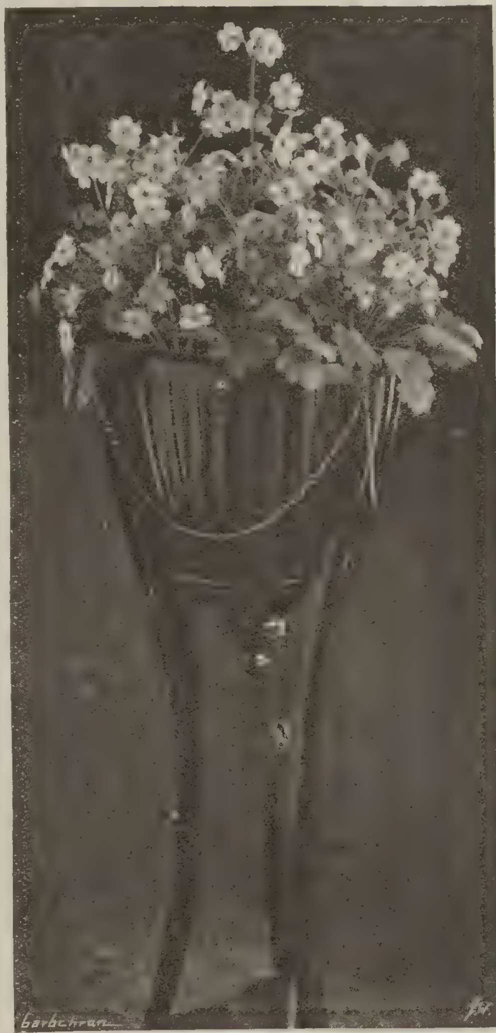

Fig. 41.—Primula stellata var. Giant White in a jardiniere (see p. 91).

In rind grafting, after pushing the scion into place, the raised bark should be cut so that for an inch or so next the shoulder the bark of the stock lies close to the edge of the bark of the scion, as if this is not attended to growth will not unite at that end and the union will be that much weaker. Quite ninety-five per cent. of the grafts put in by either of these two methods should be successful, after allowing for accidents.

A great point to observe is not to allow the sap to dry up nor allow water to enter before the graft is tied securely and waxed all over; some advise keeping the grafts in water until they are put on the stock, but that is not necessary. On one occasion I ordered one hundred grafts from a nursery; they were lost for six weeks and detained in a dry room in the Post Office, but I worked them subsequently, and they did well. On another occasion I had a large number of grafts from the United States sent in a large tin cannister and wrapped in cotton wool; these also were successful, and some which had fruit buds gave fruit the first year. Further, it is not essential that the growth of the stock should be in advance of that of the scion; a scion cut fresh from the tree will unite with the stock quite as well as a retarded one. I have grafted them when in the very early leaf stage with entire success. Grafting should not be done when the weather is rainy. Wet weather afterwards favours growth, but it is not essential to wet the grafts after they are once inserted, in case it should not rain; the scion gets all the moisture it needs from the stock. In Cornwall I find that the bark lifts freely in mid-March, and we can often continue to graft into June if we have retarded scions available. In cutting back an old tree for re-grafting, it is not advisable to shorten the branches too much; those having a thickness of two inches in diameter are suitable, and it is much better they should not exceed one and a half inch to one inch in thickness; in other words, retain plenty of small branches and insert the grafts on these Some advocate grafting half a tree one year and the other half the next, yet it is best to do the whole tree at once, and within three years it will be about as large as it was before it was re-grafted.

The rind method of grafting may be adopted for making a branch to grow on a bare limb, by simply making a T cut, as in budding, and inserting the scion, tying it and coating it with wax. The cleft method of grafting I only mention to condemn; it takes the greatest skill or luck to get the cambium layers of scion and stock in contact by this method, and even if the graft succeeds, an ugly, undesirable cleft remains for some years to harbour pests. The rind system is infinitely better and easier. The late Mr George Berry, of the Board of Agriculture, whose knowledge of all that pertains to fruit was very great indeed, could never say a good word for cleft grafting. I once saw him greatly perturbed when he visited a place where a workman had used this method and greatly mutilated the trees.

Many substances may be used for grafting wax; all that is wanted is something that will exclude the air and moisture, and be quickly and easily applied. The form of wax I use is made by melting together sixteen ounces of common resin such as fiddlers use, eight ounces of methylated spirit, and one ounce to one and a half ounce of Olive oil, or any similar vegetable oil. The materials may be melted in an ordinary glue-pot or a jam-pot stood in boiling water; the resin should be broken up finely or powdered, for quicker melting. There are two qualities of resin, one of a light, clear yellow colour, and the other very dark; the former is much the best to use, as the resulting wax will keep liquid for a day or two without re-melting, but the dark wax goes hard almost at once, although this may be corrected by using more oil and spirit. *W. J. Farmer, Ye Hive, Redruth, Cornwall.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Treatment of Miltonias after Potting.—After repotting Miltonias water should be afforded with extra care, as the young growths, as well as the new roots, are liable to decay if too much moisture is given, but when re-established in the new material the compost should be kept moist, and a little extra water may be afforded to each plant when the flower spikes appear. These plants appreciate light, especially during the dark days of winter; but direct sunshine often causes the foliage to become more yellow than is desirable; it is also important to see that the numerous small roots, which will soon be developing, are in no way injured or devoured by insects.

Angraecum sesquipedale.—Plants of this interesting winter-blooming Orchid will soon be developing a number of fleshy roots from their stems, and should any plant require more root space it should receive attention at once. Plants that have lost their lower leaves, leaving a bare stem, may be cut down and repotted. Ordinary pots provide the best receptacles; for these plants are inclined to be top-heavy, and are more easily managed when grown in pots than in any other way. In repotting, the old material should be carefully picked out, and, if any roots are clinging to the sides of the pot, they should be carefully removed, and placed in the new material. Arrange the plant in the centre of the pot, taking care that the drainage is ample, then replace the roots, and in so doing, work in among them a compost composed of equal parts clean Osmunda fibre and picked Sphagnum moss. Fill the receptacle to within an inch or so of the rim, pressing the compost down moderately firmly, and taking care not to bruise any of the living roots. After repotting no water should be given for some days, when the compost should receive a thorough soaking. The compost on the surface will soon become dry again; this should be moistened with a fine sprayer, and when the moss commences to grow the plants may be watered whenever they become dry. Guard against keeping the plants in a saturated condition, or spot disease will quickly make its appearance; but when the plants are in active growth, especially during the summer, liberal supplies of moisture may be afforded them, after which the quantity may be reduced gradually. This plant, with others of the same genus, grows best in the warm house the whole year round.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Melons.—Preparations for planting out the earliest seedlings should now be made. Where efficient bottom heat is supplied by hot-water pipes, deep hot-beds of fermenting material are not necessary; about nine inches will be sufficient to preserve the moisture in the soil from the drying effects of the water pipes, affording at the same time atmospheric conditions congenial to the young plants. Four or five days prior to planting, a continuous ridge of soil, 1 foot wide on the top and 9 inches deep, should be placed on the manure. When the soil is thoroughly warmed through, make it firm and put out the plants about 2 feet apart, taking care not to injure the stems in doing this. Water should be afforded sparingly until the roots become active. A brisk heat should be maintained, and damping the walls, paths, etc., should be regulated according to the weather. Seed may be sown shortly to provide successional plants, and the seedlings will have the benefit of brighter and longer days.

Pot Vines.—Timely attention should be paid to stopping the growths at one or two joints—according to space—beyond the bunch, and all lateral growths should be pinched back to the first joint, allowing no more growths to extend than space will permit of their full development. Black Hamburgh and Foster's Seedling are two of the most suitable Grapes for early forcing, and they are naturally free in starting into growth, but it is advisable to assist fertilisation by artificial pollination, either using a small bunch of feathers to distribute the pollen, or by drawing the hand lightly down the bunch; smartly tapping the wires two or three times daily will also help to disperse the pollen. When the berries are the size of Sweet Pea seeds, commence to thin them, leaving the shoulders with sufficient berries to form a compact, shapely bunch. A steady bottom heat should be maintained, and if provided by fermenting material, this should be turned and fresh added when necessary. Weak stimulants may be given frequently, and for general use nothing is better than liquid manure, mixed with soot water, and some suitable concentrated fertiliser at more distant intervals. Heavy doses are apt to do more harm than good. When the berries have set, maintain a moist, genial atmosphere, with a day temperature of 65° to 70°, without sun-heat, allowing a rise of 10° on bright days. A little air will be beneficial whenever the outside conditions are favourable for ventilating.

Pot Figs.—Fig trees in pots that were started at an early date will now be making active growth and claim attention in the stopping and disbudding of the shoots. These pot trees should be stopped at the fourth or fifth leaf, and the work should be done gradually, otherwise the second crop will follow too closely the first, checking development of the early fruits. All superfluous growths should be removed, retaining no more than can be fully exposed to sunlight and air. Pot trees when in active growth should not lack moisture at the roots and foliage; frequent applications of weak stimulants at the roots will be beneficial. The supply of bottom heat should be maintained steadily. The day temperature should be 70° to 75°, without sun-heat, and 10° less will suffice at night.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Shallots.—Bulbs of Shallots may now be planted on a sunny border in well-manured ground, pressing them in the soil firmly, just leaving the apex above the surface. Set the bulbs six inches to nine inches apart in the rows, and make the latter a foot asunder to allow room for hoeing. The smallest bulbs should be planted, and, as they are hardy, frost will not damage them. Beyond keeping them clear of weeds, they will not need much further attention until the new bulbs are ripe.

Cauliflowers and Cabbages.—Sow seeds of these vegetables to raise plants for summer and autumn use, in a cold frame in fine soil. Sow broadcast rather than in drills, separating each variety with a ridge of soil, and sift some fine soil over the seeds. Press the latter into the ground and water them with a fine rose can. Cover the frame with a mat until the seeds have germinated, then give them all the air and light possible.

Celery.—Where early Celery is desired, a pinch of seed should now be sown in heat in finely sifted soil, using well-drained pots or pans for the purpose. Nearly fill the receptacle with the soil, press the latter fairly firmly and then well water it before sowing the seed. After sowing, just cover the seed, water the soil again, and cover the pot with a piece of glass and paper. Celery seed should never be allowed to become dry, or failure will result. If moisture is required, place the pot or pan in tepid water up to the rim until the water percolates through, thus ensuring thorough soaking of the soil.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Eranthis hyemalis.—The golden blossoms of this lovely plant are welcome because they come so early in the year, usually February, but the mild weather of January caused some of them to open in the latter part of last month. This Aconite is a capital subject for naturalising under trees, and this is the best method of growing it, thus avoiding the disturbance of the roots which is bound to occur when planted in a flower border. In these gardens there is a colony of the plant under a Lime tree. E. cilicica blooms a little later and has rather larger flowers.

The Cornelian Cherry.—A tree or large shrub of this Cherry in flower is as pretty a sight as the garden can offer in February or March—the time of flowering being determined by the mildness or otherwise of the winter. The finest example I have seen is to be found in adjacent park land here; the tree is about 14 feet to 16 feet high and as much across. The leafless branches are thickly studded with tiny yellow flowers—the latter showing still more effectively when the sun shines on them. Later in the year the Cherry-like fruits are a further feature of this Dogwood. The present time is opportune for planting a tree or two of Cornus Mas.

Summer-sown Plants.—These include several perennials and biennials that have been growing in beds in the kitchen garden during the winter until such time as conditions favoured transplanting in their flowering quarters. In most localities this work may now be undertaken, and the sooner the plants are transplanted the better will they be able to withstand drying winds and hot sunshine which follow sooner or later in the wake of every springtime. Such plants include Gaillardia, Geum, Sweet William, Canterbury Bell, Anchusa capensis, Papaver, Hollyhock and Carnation. The old variety Grenadin, of the last, is grown largely here; it is a very free-blooming plant and useful for supplying cut blooms for arranging in small glasses.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Hydrangea.—Young plants of Hydrangea propagated last season and wintered in cold frames may now be started into growth in a temperature of 50° to 55°. Until they start into growth, the roots should be watered with extra care, but when in full growth they require ample supplies of water supplemented by frequent applications of diluted liquid manure. Blue coloured flowers are great favourites, and several substances are used to cause the blooms of Hydrangeas to assume a blue tint; alum and iron filings are generally used, and there are now several proprietary articles used for the purpose, but the success of them all depends on their constant and regular use, starting with the young plants, and using the substances regularly according to the maker's instructions, until the flowers develop. The rose and pink coloured varieties respond best to the treatment. Large specimens that are being kept on the dry side should be examined occasionally, as they must not be allowed to get too dry.

Bouvardia.—Where it is desired to increase the stock of Bouvardias, the required number of old stock plants should be partially pruned, and introduced into a house having a temperature of 55° to 60°, in which they will soon start into growth. When the young shoots are three to four inches in length they should be secured as cuttings. If treated in this way there would be fewer complaints about the difficulty of propagating Bouvardias. They are also readily increased by means of root cuttings; for this purpose some of the old plants should be shaken out of their pots, the thickest roots cut into pieces, about one inch long, and dibbled into pans of sandy soil, standing them in a warm propagating case. Some of the varieties do not come true from root cuttings, the variety Bridesmaid always giving a proportion of the variety Hogarth fl. pl. It is surprising that these beautiful and useful plants are not more generally cultivated.

THE HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Mulberries.—It is very necessary to have well-balanced Mulberry trees, or high winds will do much damage to the full-sapped, loose-jointed branches. The pruning of both young and old trees consists in removing cross shoots and allowing sufficient room between the branches for the large leaves to develop. Mulberries are generally planted in the pleasure grounds on lawns. Trees that are old and of imposing proportions require, in the majority of cases, some support, either from chains, or iron stays and collars to link up the branches. The latter are best, but care must be taken to have the collars at least 3 inches wide. Box swivels should always be used where there is a great weight to support. From year to year these bands should be inspected to see there is no danger of strangulation of bark or tissue. Cross stays of wood may be inserted under the band where the pressure is greatest. If a Mulberry tree has to be pollarded, from whatever cause, a selection of the strong growths that develop afterwards should be made. If the wood is at all unripe, strawy material should be placed among the new branches during times of severe frost.

Cuttings of Bush Fruits.—Cuttings of Gooseberries, Currants and others that have been set aside and heeled in the soil should be inserted without delay. An upright trench not less than 6 inches deep should be made, the bottom of the trench being well firmed with the foot and covered with a thin layer of ordinary sand. The cuttings should be inserted two-thirds their length below the surface, or the exact opposite to cuttings inserted in pots or under glass.

Big Bud.—Black Currant bushes should be examined for big buds. It is surprising the number of mites that are found in a single bud; on placing a piece of bud of the size of a small pin's head under a microscope, I counted twenty-two live mites.

TREES AND SHRUBS.

PYRUS TORINGOIDES.

THIS distinct member of the Malus group of Pyrus is proving to be one of the most ornamental of the fruiting Crabs introduced from China by Mr. E. H. Wilson. He first sent home seeds in 1904 (No. 1,730, W.) when collecting on behalf of Messrs. James Veitch and Sons, and again in 1908 (No. 1,285, W.), when collecting on behalf of the Arnold Arboretum. On both journeys Mr. Wilson found the tree in West Szechuan. It grows at an elevation of 9,000 to 11,000 feet, and is a tree from 15 to 25 feet in height.

Our young, cultivated specimens prove Pyrus toringoides to be a free growing and elegant tree, with usually irregularly and deeply lobed leaves. In May, the corymbs of creamy white blossoms, six to nine in a cluster, each flower $\frac{3}{4}$ to 1 inch across, are attractive. It is, however, in September and October, when the distinct and most attractive fruits mature, that the tree is in its full beauty. Globose would perhaps best describe the shape of the fruits, which average half an inch in width. As indicated by the illustration (Fig. 42), they are pendulous and freely produced, yellow more or less flushed with red on the sunny side, or, if in full sunshine, very little of the yellow colour remains.

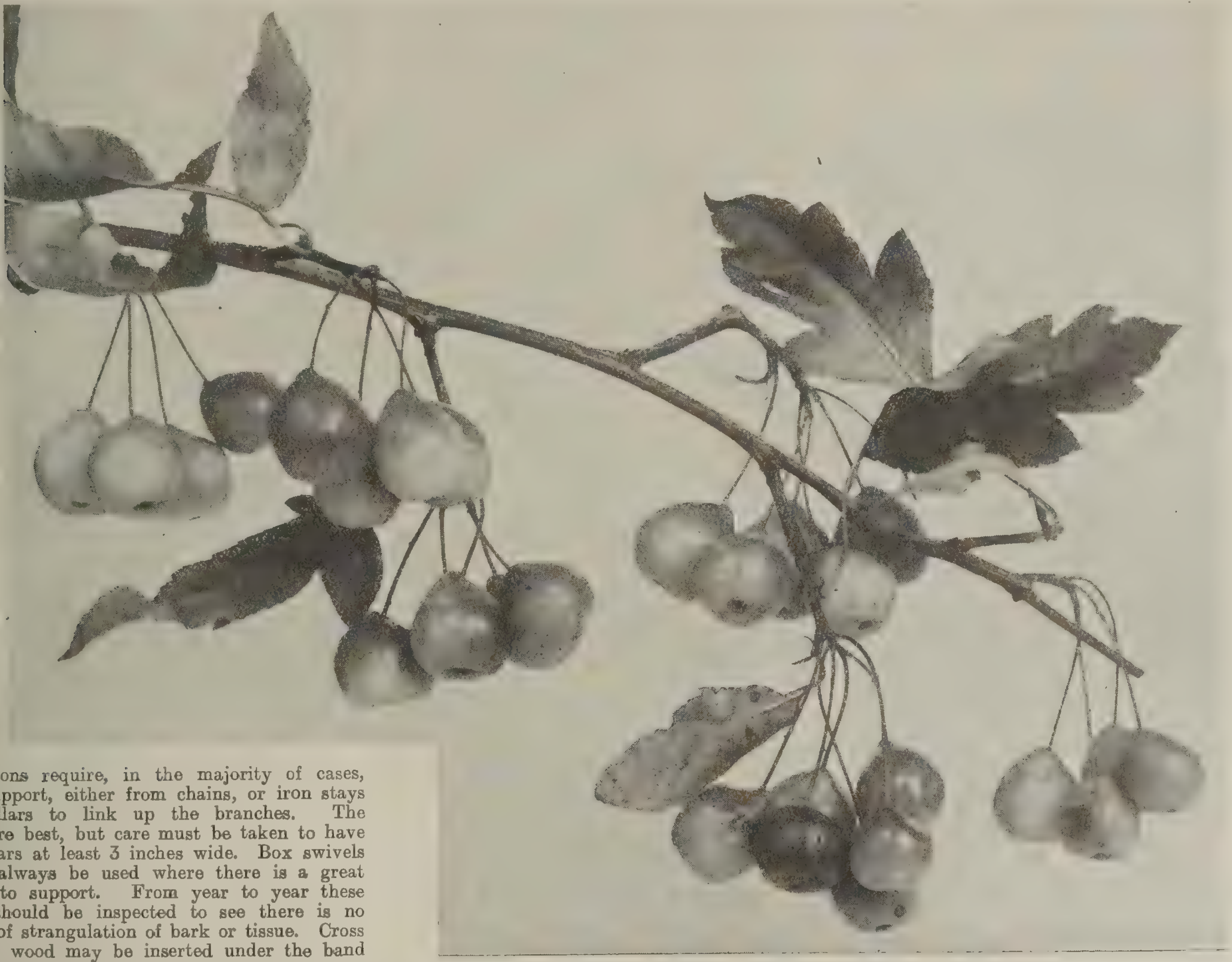

FIG. 42.—FRUITING BRANCH OF PYRUS TORINGOIDES.

When the plant was first introduced P. toringoides was regarded as a variety of Pyrus transitoria, being named var. toringoides, Rehder, in *Plantae Wilsonae*. More recently, in the *Bot. Mag.*, it was figured as Malus toringoides. P. toringoides belongs to a small section or group, in which the calyx disappears, leaving perhaps a scar, the set including P. alnifolia, P. Sargentii, P. Toringo and P. Zumi. *A. Osborn, Kew.*

SOME UNCOMMON HEATHS.

THOUGH it can scarcely be considered a rare species, Erica australis is very seldom seen in the average garden. This may be due to the fact that it is so often confounded with E. mediterranea, which is often sent out by nurserymen under its name, and there is also a current belief that it is too tender save for our mildest districts. As to its identification there need be no doubt, for E. australis is quite unlike any other member of the genus. Though usually classed as a Tree Heath, there are probably not many specimens in this country more than 4 feet to 5 feet in height. Nevertheless, it has an upright habit, after the manner of E. scoparia, but the foliage is a darker, bluer green and the bark more ruddy.

E. australis is an April-May bloomer, and it is in the flowers that it is perhaps most distinctive. These are borne in flat, terminal clusters (usually four or eight to the cluster), and they are pitcher-shaped, $\frac{1}{4}$ inch in length and of a brilliant rosy carmine colour. Even the best forms of E. carnea cannot equal the peculiarly vivid colour of these flower heads, which, as I have suggested, are entirely different from those of E. mediterranea, that bears its blossoms at the leaf axils in crowded spikes. E. australis, growing in ordinary woodland loam, has withstood 20° of frost here without injury; it is an unfailing bloomer, and remains in flower for about two months.

E. mediterranea provides us with a white variety (alba), which is not only a good white Heather, producing fine spikes of spotless purity in great abundance, but one which is in bloom in spring. In view of the fact that this is the only white Heath (if we except the Tree Heaths) of any real merit which flowers as early as March, it is surprising that it is not better known, and especially as it is quite hardy almost anywhere.

E. hibernica is said to be a form of E. mediterranea, which it closely resembles, but the plants here under that name have a more lax habit than those of the type, the foliage is a deeper, somewhat glaucous, green, and flowering does not take place until E. mediterranea is almost over.

In considering white Heaths, the delicate beauty of E. ciliaris alba should not be overlooked. Like the typical Dorset Heath, it appears to withstand almost any amount of frost, but it needs shelter from cold winds. Our best plants of this species are afforded shelter provided by such robust kinds as E. vagans and E. Serlei.

Yet another charming white Heath is E. vulgaris gracilis. In this variety the spikes are long, well furnished with dead-white bells, which have the advantage of a dark-green foliage for background. The forms of E. Tetralix include, in addition to the common white form of the type species, a very pubescent variety of sturdy growth which bears large white flowers at the tips of its silvery shoots. This we have here under the name of E. T. alba mollis.

E. Mackaii is a good garden Heath, which in form and foliage suggests a near relationship with E. Tetralix. The flowers are blunter and fatter than those of the latter and of a pale, clear rose. There is also a pretty double form of E. ciliaris known as Maweana, which, though introduced many years ago, is still uncommon. In this Heath there is no little resemblance to E. ciliaris both in habit of growth and flowers, but the latter are nearer a rich crimson than purple, and they are liberally produced. E. Stuartii, said to be a hybrid, is a pretty Heath which, in our experience, is a slow grower of dwarf habit. Its white flowers, which open at the end of the summer, are sharply tipped with carmine.

E. Watsonii is believed to be a natural hybrid between E. ciliaris and E. Tetralix, and it certainly suggests a combination of those species in its soft, emerald green foliage and rather globular, rosy-pink flowers. But the latter appear in a somewhat flat raceme, as do those of E. Tetralix, and the plants have a closer. more compact habit of growth than is common to either plant. This is a good Heath for the small rock-garden, and as much may be said for the very squat and closely-set E. vulgaris var. Foxii. though this plant does not flower freely with us.

Our native E. cinerea gives us at least one excellent dwarf form, E. c. coccinea, that is well worthy of a choice place in the garden. This is a dwarf plant, slow in growth, with foliage of a very dark green and flowers of a most brilliant crimson-scarlet. The sister variety, named atrosanguinea, is somewhat like the above, but it is rather more vigorous and, though a really fine colour, the flowers are hardly so intense a hue as those of coccinea. Much better known, perhaps, and so much bigger and redundant in every way than the foregoing that it might be taken to be a different species, is the splendid E. cinerea rosea. There are other good ones in plenty, but I know of none that will give such a gorgeous display of clear, yet full rose-pink from midsummer onwards as E. c. rosea when boldly massed on a warm, sunny bank.

I have already alluded to one or two of the E. vulgaris (Calluna) section. But this is a group rich in good plants which are but little known, and I may mention a few. Quite one of the finest is the double variety of the type, a vigorous grower and profuse bloomer which becomes a mass of delicately tinted rosy-lilac colour. Even those gardeners who do not have a great liking for double flowers must make an exception of E. vulgaris fl. pl.

The close-growing E. v. tenuis, with flowers of a lively crimson-scarlet, is an admirable rock-garden variety. The varieties tenella and tomentosa are both good white sorts, refined and distinct, and one cannot overlook the fine foliage effects produced in winter by such varieties of E. vulgaris as cuprea, aurea and bronzifolia.

Rarer than any of the foregoing are E. Williamsii, a remarkably beautiful variety, reputed to be a vagans × Tetralix hybrid, and E. vagans var. St. Keverne, which is very distinct in its clear and delicate rose colouring. These we have only just acquired, and one more novelty which we have not yet been able to secure is E. scoparia prostrata, which appears to have been established at Kew for some time. *A. T. Johnson, North Wales.*

LILIUM SULPHURGALE.

THOSE who find the desire to hybridise Lilies irresistible do not always remember that not for many generations can seminal propagation be relied upon to reproduce the characters of the first children of the cross. The stock of the latter can only be increased by propagating from axillary bulbils, where they exist; offsets, and by scale or leaf bulblets. Seedlings of a mongrel in the first generation rarely show all the hybrid characters of the original. They revert in great measure to the female parent. In a couple of generations the reversion is more marked, and in many crosses all obvious signs of mixed parentage have disappeared in the fourth generation.

The non-recognition of Nature's ways in these matters has already led to confusion in the case of a hybrid between L. sulphureum and regale, to which the name "sulphurgale" has been given. The origin of this Lily is set out by the raiser, Prof. F. Scheubel, in the following words: —

"In 1913 one flower of Lilium sulphureum set with pollen of Lilium regale produced a pod that gave among much chaff 30 good seeds. Sown at once, they came up during the winter, and in early spring grew without any peculiar care in their seed-pot in the open. In the autumn the 24 little bulbs were planted into two boxes along with two bulbs of Lilium regale, which were a year older. The boxes passed the winter dry in a cellar. Next spring they grew well and showed buds. Not to weaken the plants, I removed them as soon as I could. The hybrids grew stronger than the two Lilium regale, and produced bulbils in the axils of the leaves as the mother plant (L. sulphureum) does, but those bulbils were not like those of L. sulphureum, but more like those of L. leucanthemum (Sargentii). In 1915 the new shoots came up very vigorously, and about the end of July they began to flower, about a fortnight after the L. regale, much overtopping it. The flowers were in number from one to eight on a plant, in size of regale and much larger, differing somewhat in form and colour, and very strongly scented. Nearly every flower set seeds; but I allowed only one or two pods on a plant to ripen."

The story is then taken up by Herr Bonstadt, Curator of the Botanic Gardens at Göttingen in 1919:—"Late in autumn 1916 Professor Scheubel sent me his seeds saved from his hybrid lily, Peace lily, as we called it. I sowed at once in hand-boxes in a conservatory. Nearly every seed germinated in a few weeks. As I had sown every seed in a distance of nearly an inch, I could allow the seedlings to grow undisturbed in the same boxes during the following summer. In the open they made speedy progress. During the winter I removed them to a cool pit. In early spring, 1918, I planted the little bulbs in beds in ordinary, rather heavy garden soil, where they came slowly into growth, which increased in the summer when rain set in. I was much surprised that by the end of summer some of the lilies already were showing buds, which came into flower. In winter 1918-19 the bulbs remained in the open without any protection. This last spring their shoots came up very vigorously, most of them with reddish-brown stems, but some with green stems. Nearly every plant developed already one to five flowers which opened in July, their fragrance filling the air to far distance. The plants with the greenish stems brought up flowers in lighter colour. The brownish stripes of the outer sepals changed here to greenish yellow.

"My experience with Mr. Scheubel's lily I can résumé as follows:—It is an easy grower, thoroughly hardy, the flowers excel all others in size, beauty and fragrance. They show a slight tendency to variation and further development."

The only true specimens of this particular cross between the two Lilies will be the original 24 bulbs, and any bulbils or offsets removed from them. The Lilies referred to in the Curator's story are not the original hybrids, but the first generation of their progeny in various stages of reversion. That is why a bed of these Lilies presents such a mixed collection, and why nine-tenths of the so-called L. sulphurgale are not sulphurgale. *A. Grove.*

ORCHID NOTES AND GLEANINGS.

BRASSO-CATTLEYA HANNIBAL VAR. HELEN.

FROM the gardens of G. W. Bird, Esq., Mano House, West Wickham (gr. Mr. Redden), this richly coloured cross between B.-C. Digbyano-Warneri and C. Fabia, shown as B.-C. Helen, deservedly secured an Award of Merit, the rich vinous purple tint of the whole flower being superior to that found in any other class. Mr. Bird also showed the plant last year with its first flower.

In 1920, Sir Geo. L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander) showed the same cross as B.-C. Hannibal, and therefore Mr. Bird's hybrid must be recorded as a variety. It is interesting to note that the nearest approach in colour of the whole flower, is found in the plant known as Cattleya Transylvania, a cross between Comet (Dowiana × Warneri) and Fabia (Dowiana × labiata), which was obtained from the same species without the Brassavola factor. This shows the colour-producing power of C. Warneri retained by C. Dowiana when suitably combined.

POTINARA JULIETTAE.

IN this remarkable cross between Brasso-Cattleya Ena (B. Digbyana × C. Lawrenceana) and Sophro-Laelio-Cattleya Marathon (B. Empress Frederick × S.-L. Psyche), Messrs. Charlesworth and Co., Ltd., Haywards Heath, instituted a new race destined to take an important part in colour development in hybrid Orchids; it received a First-Class Certificate at the Royal Horticultural Society, February 28, 1922. The original plant bore orange-red sepals and petals, the latter tinged with violet, the lip ruby-red with gold lines from the base. A fine flower now received shows a variety of larger size and darker colour, the sepals and petals being vinous purple and the wavy-edged lip violet crimson. The mid-ribs of the sepals and petals are ivory-white on the parts nearest the column, a feature which increases the effect of the rich colouring.

VANDA TRICOLOR INSIGNIS.

FLOWERS of this most beautiful form of Vanda tricolor—the variety insignis—shown to the members of the R.H.S. Orchid Committee at a January meeting, are especially interesting as proving that this fine variety is still in existence in the gardens of H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. F. W. Thurgood), where it has flourished and flowered regularly, together with other fine forms which have been in the Rosslyn collection for over thirty years. It is illustrated in Warner's *Sel. Orch.* 1, t.7. The flowers are broad and well displayed, the sepals and petals bright yellow, regularly spotted with purplish-red, the margin being cream-white. The lip is light rosy-mauve, white towards the margin. The Vandas at Rosslyn are grown in a well-ventilated intermediate house, where they remain in perfect health. V. tricolor was introduced from Java by Messrs. J. Veitch and Sons in 1846, as V. suavis, and the yellow as V. tricolor, a classification which, for garden purposes, is useful.

GREENHOUSE PLANTS AT READING.

In the dull days of winter, and particularly during the two first months of the year, brightly-flowered greenhouse plants have a special value inasmuch as they brighten up the greenhouses and conservatory during a period when there is comparatively little sunshine and very little that is attractive in the open garden. It is during such a period that greenhouse Primulas, particularly those of the popular florists' group, are available; but these easily grown and beautiful subjects are equally valuable for the decoration of dwelling rooms, and if grown cool, they will withstand the dry atmosphere of a living room for a considerable period without suffering injury. Moreover, Primulas have a peculiar grace and their flowers are set off pleasingly by foliage that is almost as attractive as the flowers themselves and of considerable variation in type.

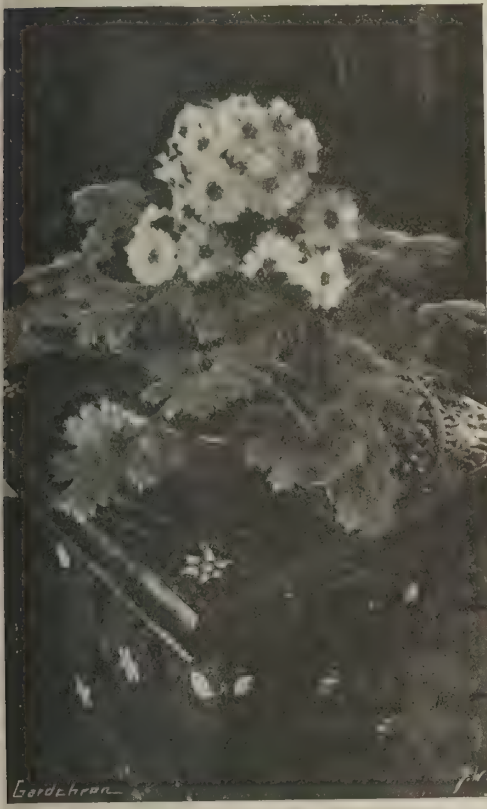

Fig. 43.—Primula sinensis, The Pearl, in a drawing-room.

Viewed in the mass in the conservatory or greenhouse, Primulas are undoubtedly effective, but a specimen plant in a room is far more interesting inasmuch as it permits of closer inspection. A careful examination of a well-grown Primula set in a pleasing receptacle in a dining-room or drawing-room will reveal many points of interest, which would not be noticed in the general effect produced in a conservatory. For instance, there is the beautiful frilling on the large flowers of the Giant section of the florists' type; the wonderful arrangement of the colours; the form of the centre or eye; and also the colour and form of the foliage, for the last varies very greatly. Then, also, an examination of a specimen plant will usually have the effect of calling to mind the marvellous advances that have been made by the florists during half a century. Even thirty years ago Messrs. Sutton and Sons had not made a very great advance either in the blue or crimson shades, whereas a visit now to their nursery at Reading to see the Primulas will reveal the fact that there are several shades of real blue and also some very rich shades of crimson and crimson-scarlet. These striking advances in colour production have been obtained only as a result of infinite patience and perpetual vigilance, and it is these qualities aided by skilful cultivation that have made the Primulas of this famous firm so popular.

From a scientific point of view the Reading Primulas offer many points of interest, and while some fully prove the correctness of the Mendelian theory, others seem to be governed by no law whatever. From the gardener's point of view, the Primula serves a very useful purpose, but from the point of view of the home it is doubtful whether Primulas have yet received the attention they deserve. Hence the illustrations accompanying these notes (Figs. 41, 43, 44), which are given by way of encouragement to those who, perchance, have not yet had an opportunity of appreciating the beauty of a Primula in the pleasant surroundings of the home.

Messrs. Sutton and Sons have a magnificent display of Primulas in their nursery, and it is interesting to observe that certain varieties appear to do best in a cool, moist season like that of 1922, while others appear to need a hot, bright summer like that of 1921, to bring out their best form and colour. The Duchess apparently likes a cool season, whereas Reading Blue prefers a hot one, and similar peculiarities apply in some degree to most other varieties; hence it is worth the while of any gardener to keep notes of the results obtained each year, so that he may safeguard his reputation no matter what the season may be. It is hardly necessary in these notes to enumerate the many exquisite varieties of the florists' Primulas, Giants or otherwise, which Messrs. Sutton and Sons have raised and grow so wonderfully well, but it may be said in passing that the variety Intensity is a glorious advance in crimson shades, while Symmetry, with rich rose colouring, and a habit and flowers intermediate in character between the Star varieties and the older florists' type, is already immensely popular. Coral Star also stands out conspicuously good this season, and all the Giant varieties are producing trusses of immense blooms, which suggest that a long, cool season of growth, such as that experienced during last autumn, suits them.

With regard to cultivation, it is a matter for surprise that Messrs. Sutton and Sons never supply their Primulas with liquid manure or artificial fertilisers, but they have great faith in lime as an ingredient of the potting compost. It may be that where gardeners fail with Primulas is that they maintain too high an atmosphere, do not add lime to the potting compost, and as soon as the plants are well rooted commence to apply liquid manure to the roots.

Messrs. Sutton and Sons have some good new varieties in store in most sections of greenhouse Primulas. They are also making progress with new shades of colour in Primula malacoides, and they also have a form of this type in which the flowers are circular and entire instead of being deeply incised. It looks as though, before many years have elapsed, we may have a real blue form of Primula malacoides, and possibly a deep magenta from which eventually crimsons may result.

Apart from the Primulas, the Cyclamens at Reading are in themselves well worth a visit, and on looking back over many years, we can confidently state that never before have we seen these useful plants in such superb condition as when we saw them a week ago, and among all the exquisite shades of colour now presented, the new and brilliant Firefly stands out conspicuously. On one plant of a white, purple-based variety, growing in a small 32-sized pot, we counted seventy blooms, and other buds were pushing up from the corm.

Cinerarias, like the Primulas and Cyclamens, show evidences of skilful crossing, selection and cultivation, but these are only just beginning to flower at Reading. There are other matters of interest at this nursery, and one that indicates the business progress of the firm is the erection of a new block of greenhouses.

THE ALPINE GARDEN.

ERYTHRAEA MASSONII.

I frequently wonder how it happens that Erythraea Massonii, generally offered in catalogues as Erythraea diffusa, under which name I first grew it, is not to be found in almost every rock garden of any considerable size. It cannot be that its beauty is not appreciated when seen, as it has more of charm to commend it than many alpines much more popular and very widely grown. The race has been likened to that of the Gentian, and the general aspect of the Erythraeas does remind one of that valuable genus, but in the matter of colour the plants are very distinct from the smaller Gentians, which they resemble in some other features. None of the Erythraeas has the exquisite blue flowers of the best of the Gentians, but instead they have generally lovely little flowers of wax-like appearance and of a charming rose-pink. E. Massonii is one of the best, as, whereas some of the Erythraeas are little more than biennials, it is a true perennial, which, with moderate care, will live for many years. It loves a light, fully drained soil, but at the same time does not appear happy when kept too dry; I found that good soakings of water during spells of dry summer weather help it greatly, and also that it prefers a little shade.

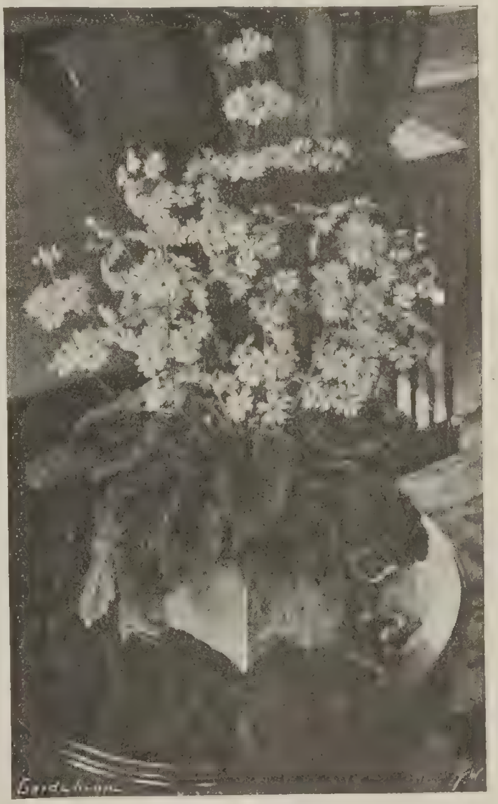

Fig. 44.—Primula malacoides in a dining-room.

SYNTHYRIS RENIFORMIS.

For a cool corner of the rock garden, the margin of the woodland walk or edge of the shrubbery, this is a delightful plant. It is a N. American, Rocky Mountain alpine, therefore perfectly hardy, and though not particular as to soil, so long as this is not too dry, a mixture of leaf-mould, peat, loam and sand suits it best. S. reniformis makes a bold, orderly tuft of round, dark-green, shining leaves with scalloped margins. From among these the flower stems rise in early spring to a height of some eight inches, their upper parts being crowded with blue-violet flowers, which are borne for several weeks. The flowering date differs considerably with the season. I have seen S. reniformis in bloom in February, and on other occasions it has not flowered until May. A second crop of flowers in October is by no means uncommon. *A. T. J.*

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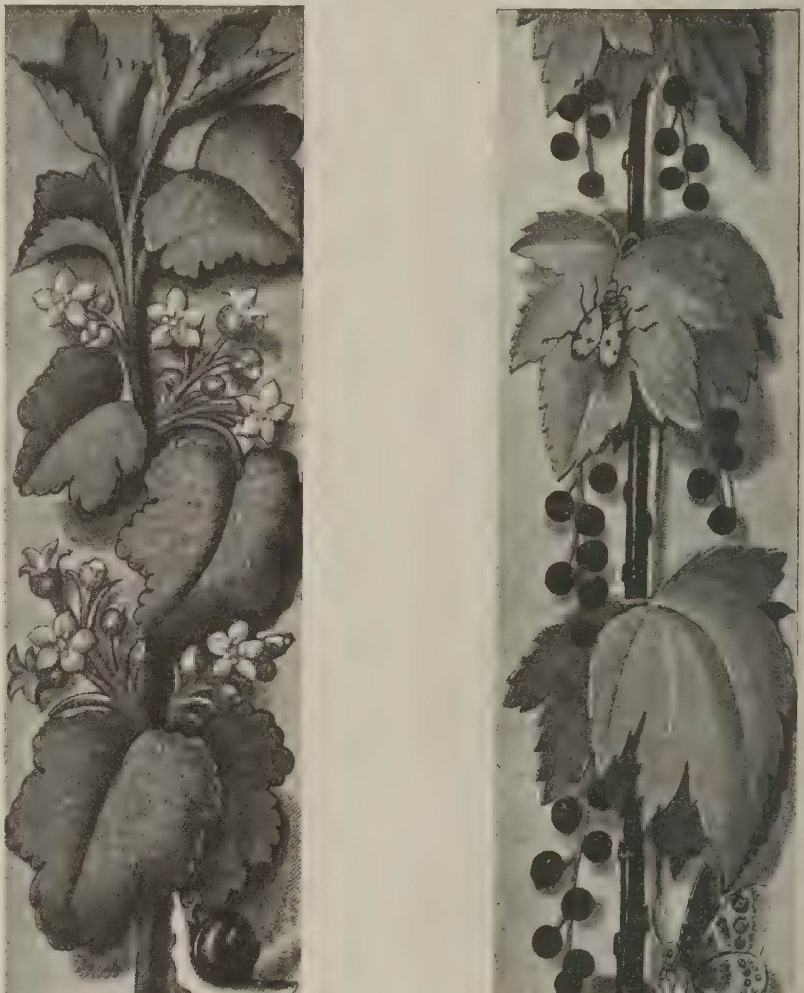
EARLY BOTANIC PAINTERS.

No. 2.—JEAN BOURDICHON.

IN reviewing the early botanic painters, one naturally calls to mind many examples of the arts of the illuminator and the painter, which, although having no intimate connection with early botany, are yet of much value as contemporary witnesses. Some of the Books of Hours of the late fifteenth and early sixteenth centuries, with their broad borders of gold or colour, on which were painted, often with an exquisite freshness, snippets of flowers, together with fruits, insects, etc., reveal a very intimate love for natural beauties. These charming little scraps of nature painting are almost like the forerunners of better things in botanic illustration, which at the time they were painted was more or less in the primitive stage found in the earliest illustrated herbals. Again, in some of the works of the early painters are to be found flowers painted with much skill and charm; though many of these can hardly be classed with botanic paintings, as they represent only distant views of plants. Good botanic illustration is to be obtained only from a "close up" portrayal of plants; and it is a well-known fact that the best botanists are often short-sighted. It would seem evident, therefore, that the true line of descent of botanic painting (and of botanic illustration generally) was by way of the miniaturist's art, and not by that of the painter of pictures. As much of the work of the early painters really partook in some measure of miniature-painting on an enlarged scale, it is easier to note this distinction by a comparison with modern easel-pictures, in which even a group of flowers is usually painted too far away to properly distinguish the details. Without doubt, the general progress in the art of painting had its due effect upon the technique of botanic artists; yet till a late period we find botanic paintings referred to as being "in miniature," which no doubt meant, not "on a small scale" as we understand the word to-day, but "in detail," that is, a representation of a near view of a plant—near enough to see clearly all its details.

Among the illuminated vellum manuscripts referred to above, is one which is peerless of its kind. This is the famous *Livre d'Heures de la Reine Anne de Bretagne* (Bibliothèque Nationale MS. Latin 9,474), the work of Jean Bourdichon, "premier peintre du Roi," who was born at Tours in 1457, and is supposed to have died at Lyons in 1521. Never before or since has such a wonderful prayer-book been produced, for the numerous miniatures of plants which decorate it constitute a valuable early Florilegium. Executed in the early years of the sixteenth century (in 1508 the artist was paid a considerable sum for his work), it contains 337 paintings of diverse plants, most of which occupy upright rectangles, 165 × 45 mm., placed at the outer margins of the text; and besides whole pages filled by elaborate devotional pictures, there are many with borders, or half-borders, covered with flowers, etc. A series of twelve of these borders give delightful scenes typical of the months, one being a view of a castle garden, showing its walls with their turf-seats. The paintings are executed in body-colour on a gold ground, which is edged at the right with bright red, the same colour also forming a base for the French name of the plant, which is written in gold. A Latin name, often of a barbarous type, appears in red Gothic letters above each rectangle. The plants are made to stand away from the gold ground by the careful painting of their cast shadows. Included with the plants are large numbers of well-designed insects, and even a few animals. The dragonfly is especially well painted, and appears to have been a favourite with this artist, who in some instances tried to render the subtle colour effects of flowers partly seen through its wings!


FIGS. 45 AND 46.—BOURDICHON'S FIGURES OF THE BLACK CURRANT; FROM L. CURMER'S FACSIMILE. LEFT, FLOWERS; RIGHT, FRUITS.

The great merit of Bourdichon's plant-figures lies in the fact that he got away from the conventional types of plants then in vogue, and went to Nature for inspiration. During the Middle Ages illuminators had contented themselves with a few flowers for decorative purposes—especially the Rose and the Lily; but Bourdichon painted all the flowers he found growing either wild or in gardens. It is true that he had to consider first of all the decorative treatment of his MS.; and, even with the plant before him, he did not scruple to apply its form and colour to his design in his own way. His representations are not those of a botanist, but of one who delighted to paint a pleasing picture of a plant; not caring too much about exactness in details, but joyfully using the general beauty and bright colouring of flowers in a way that fitted in with his decorative scheme. However, the majority of his plants have had their modern names determined.

This beautiful MS. has not failed to attract the attention of botanists. Antoine de Jussieu, first of a line of famous botanists, was allowed by Louis XV. to take it home and study it at his leisure. In 1722 he read a memoir on it to the Académie des Sciences; but his manuscript was not published until 1886, when L. Lalanne found it. In 1859, L. Curmer, of Paris, published a fine chromolithographic facsimile of Bourdichon's MS., limited to 850 copies, adding in a second volume (which, by an error, was dated 1841), a French translation of the prayers, and a memoir on the plant miniatures by the botanist, J. Decaisne. The best memoir on the plant miniatures, correcting the errors of the two previous writers, is by Jules Camus, who in 1894 published a complete account in the *Journal de Botanique*, vol. 8, giving an alphabetical list under the old French names, adding the modern determinations, and many notes, the whole forming a valuable guide to the MS. He points out how in some instances the painter has given the different varieties—wild, cultivated, double and white-flowered—of the same plant Perhaps the most interesting of his notes is that garding the Black Currant. Two miniatures igs. 45 and 46) representing this plant, which s unknown to the Ancients and the herbalists the Middle Ages, are believed to be the ear- st figures of this species done in Europe. One ows a stem in flower, and the other, which is rt of one of the half-borders, an ample repre- ntation of the fruit. The inscriptions are *Poyvrier. Flores piperi,*" and "*Poyvre. peri rotondi.*" If we turn to Bailey's *andard Cyclopaedia of Horticulture*, 1919 . 917), we find it stated that "the Currant is t known to have been under cultivation before e middle of the sixteenth century." Can ese paintings be taken as evidence of the ltivation of the Black Currant in France about 00? These two miniatures are selected for eir special interest; but many of the others are r more elaborate and charming.

Jean Bourdichon certainly deserves a place nong the early botanic painters. Had he lived century later, no doubt he would have pro- ced a Florilegium rivalling even the best of at period. As it was, he accomplished this ng series of beautiful plant-pictures, which nstitute at least part of his book a true orilegium. *S. Savage.*

INDOOR PLANTS.

SINGLE CAMELLIAS.

Camellias, at one time favourite conservatory nts, have for many years been poorly repre- nted in gardens, and this is due to the fact at their stiff, heavy flowers are practically eless for cutting. Apart from this defect there e few handsomer evergreen shrubs for the nbellishment of cool conservatories, whether anted out in beds or borders, or grown in ts or tubs. Not the least of their merits is e fact that they may be had in flower from e beginning of November until June.

There are not wanting signs that Camellias e regaining in some measure their former pularity. This is probably because a large mber of beautiful single varieties have been troduced. Planted indoors in beds or borders, a compost of good fibrous peat and loam, ade quite firm, their successful cultivation esents no difficulty beyond giving attention watering and keeping the plants clean.

The successful cultivation of single Camellias pots or tubs, however, requires more skill d attention. As regards soil, they grow very eely in peat, but do not flower so freely as hen the compost consists of equal parts of od fibrous peat and loam with enough clean. arse sand to keep the whole sweet and rous; efficient drainage is also essential as amellias enjoy copious supplies of water when good health; they should also be potted mly. The best time to repot them is when ey have finished flowering and just before ey start into fresh growth; sometimes it may necessary to pot them before flowering is ite finished. After repotting they should be pt close and warm in a temperature of 55°, d syringed twice a day during bright eather. As the young growth approaches aturity the plants should receive more air, d when growth is finished for the season amellias should be stood outside for the sum- er months, standing the pots on a bed of hes in a sheltered position. Strict attention watering is essential as dryness at the roots d a too dry atmosphere indoors are common uses of bud dropping, though this may also cur if the plants are allowed to carry an exces- ve crop. Thus it is often necessary to thin e buds. Grown in pots and tubs they ake very hard, compact balls of soil and ots which are apt to get dry in the centre; this should happen the pots should be stood r several hours in a vessel of water to make re the soil is thoroughly soaked. Single amellias may be had in flower for many onths by keeping a succession of plants in a ld house and introducing them as required to a warm greenhouse. It thus follows that e early started plants complete their growth d set their flower buds early, and are in condition to be started early the following season.

Camellias require a certain amount of pruning to keep them well furnished and in good shape, and this is best done when they have finished flowering and just when they are starting into fresh growth. When the pots are well filled with roots occasional supplies of dilute liquid manure or soot water are desirable, but the use of artificial fertilisers is not desirable.

Camellias are quite hardy, either in the open or trained against walls, but as they bloom early the flowers often suffer from inclement weather. Camellias may be propagated by means of seeds, layers, cuttings and grafting. The varieties that root readily may be used as stocks on which to graft the less robust varieties. Side grafting is the method practised; this, in fact, is the only way to successfully increase the beautiful C. reticulata; even so, many cultivators fail with this plant as they are not aware that scions of two-year-old wood must be used. This beautiful species is not so hardy as are the japonica varieties, and it is not long happy under pot cultivation, but is seen at its best when planted out in a large conservatory.

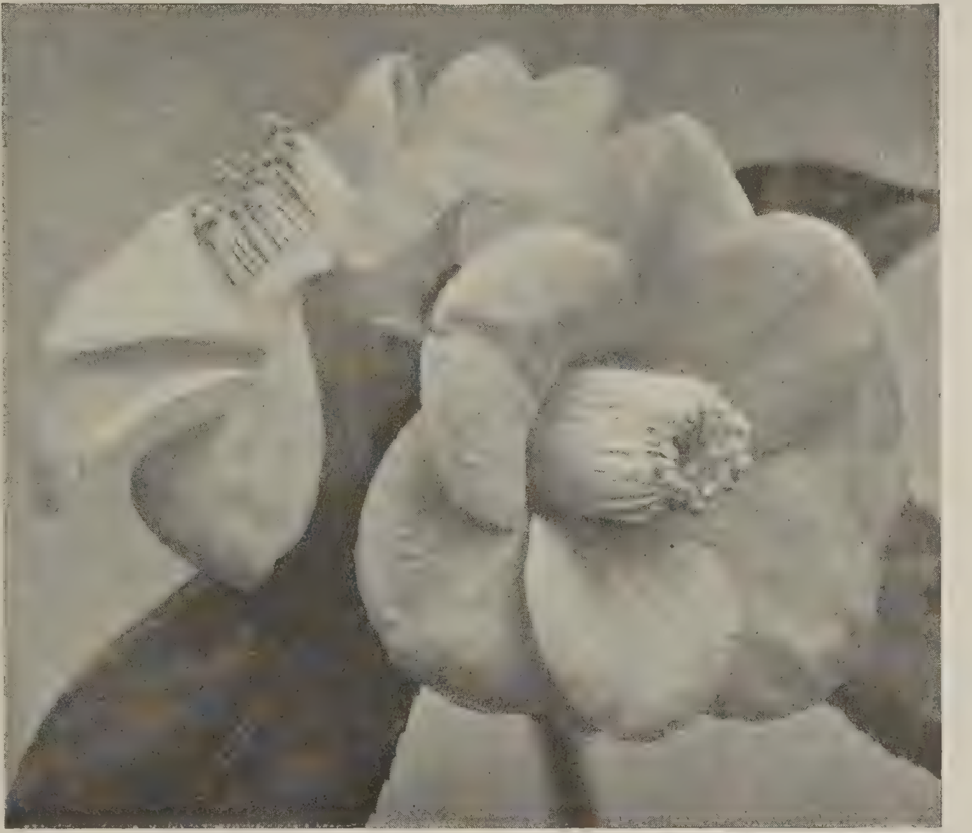


Fig. 47.—Camellia Jupiter, a single variety with light flame coloured flowers.

Camellia japonica is a native of China and Japan, and was introduced to this country in 1739, and is figured in the *Bot. Mag.*, t. 42; from this species the large number of garden varieties have descended. In *Bot. Mag.*, t. 1654, the variety anemonaeflora or Warratal is figured; this has a single row of outer petals, the stamens being replaced by a round boss of petaloid filaments. There are two huge specimens of this old variety in the Temperate House at Kew.

At the meeting of the Royal Horticultural Society, held on January 30, Messrs. Chaplin Bros., Waltham Cross, exhibited some fine single varieties, including Waltham Glory, The Swan and Jupiter (Fig. 47). A few other fine single sorts are C. japonica var. grandiflora, a very large white variety, with a double row of petals and great boss of golden stamens; Lady Clare, a large flower, a beautiful shade of salmon rose; Kimberley, brilliant red, and of the anemonaeflora type; White Rose and Lady Mackinnon.

Other good species are C. rosaeflora (*Bot. Mag.*, t. 5044), and there is a double variety of this in cultivation, a very charming plant with rose coloured flowers; unlike the varieties of japonica, its flowers remain on the plant for a long time. Lady Ardilaun, a small white-flowered anemonaeflora variety, also possesses this desirable quality. C. japonica var. magnoliaeflora is perhaps the most charming of all the single varieties, its flower being a beautiful shell pink, and almost campanulate in shape. The very distinct and elegant C. Sasanqua, of more recent introduction, is a slender growing species, of which there are a number of single varieties. *J. Coutts.*

CLERODENDRON FALLAX.

Although Clerodendron fallax is a plant which may be grown on for an indefinite period under suitable conditions, the rich heads of scarlet flowers are never finer than on plants of one year's growth, raised from seed. Seeds should be sown now in well-drained pans of light soil, plunged over a brisk bottom-heat. Germination occupies about a fortnight, and when it takes place the receptacles should be placed near the roof-glass in a shady corner of the stove. When large enough pot the seedlings into 3-inch pots, using a mixture of equal parts loam and peat, with sufficient sand to ensure porosity. Regular attention in regard to light, syringing and watering will, in the moist atmosphere of the stove, soon fit the plants for the final potting into 6-inch pots. At this stage the proportion of loam to peat should be as two to one, and this mixture may with advantage be enriched with a little dried cow dung and bonemeal. Crock the pots liberally, and pot firmly. It will be necessary to exercise care in watering and shading until the roots have taken hold of the new soil.

When in full growth Clerodendron fallax needs copious supplies of water, and liberal feeding when the pots are full of roots. When the flowers are about half-open, the plants may be removed to a cooler structure, preparatory to being taken into the conservatory, where in bold groups they are seen to great advantage from August to October. *Y. G.*

COMMERCIAL HORTICULTURE IN THE ISLES OF SCILLY.

(*Concluded from p. 66.*)

Besides being horticulturists, the majority of the men on the island of St. Martin's are fishermen, and a very profitable industry is carried on in "potting" for lobsters, crayfish, and crabs. Since the best fish are always found around the rocks and ledges, these brown-faced, weather-beaten fishermen-flower-growers continually risk their lives in quite small boats when setting out to sea to haul and bait their pots.

The rock-strewn coasts and channels of Scilly are a terror to the average sailor, yet these men set out with no sense of heroism, but with smiling insouciance and casual quip—it is all in the day's work!

Early Potatos come next in importance to bulbs and flowers, and are usually carried on in conjunction with the latter. It is the only change of rotation at present practised—bulbs and Potatos—Potatos and bulbs. The variety commonly grown is Advance, which is only a synonym for Dargel Early. The seed is once grown in Lincolnshire from Scotland, and imported by special steamer (the advent of the "tater boat" is a great event to the islanders), usually during the middle of October. The boat unloads at the three largest islands, St. Mary's, Tresco, and St. Martin's, and the tubers are at once stacked in sheds, barns, flower-houses, and the like, to chit or sprout. Planting commences about the third week in December. All the seed is cut, and a "set" consists of two stubby sprouts and a small portion of tuber. It is usual to plant from two to two-and-a-half tons per acre, which may yield a two, three, or four fold crop. The average yield is from four to five tons per acre. A very heavy dressing of seaweed is applied some weeks prior to planting, so that it may decompose, after which it is ploughed in with the Potatos.

The crop is lifted by hand labour, and in an early season lifting commences about the last week in April. High prices are obtained for the first earlies, and there is great competition to be the first to dig. The honour usually falls to Tresco, as this island, owing to its position, well-timbered and sheltered condition, is warmer and not so liable to damage from the terrific wind storms which frequently sweep over the islands. Scilly can nearly always capture the early markets three weeks ahead of the Channel Islands. The only difference between the Scillonian and mainland method of Potato culture is in the manner of earthing up. Instead of the ridging plough or moulder we cultivate more or less on the square or flat. These squares, encompassed by high Escallonia hedges, are subdivided into long narrow beds raised above the level of the field, and earthing up, or "grooting," as it is termed here, consists in top-dressing these beds with a layer of fine soil when the Potato growth is about three inches above ground.

The Potato crop is very profitable, and every cottager grows his patch, the results being put away for the proverbial rainy day—it is the cottager's harvest.

Tresco Abbey Gardens.

This account of the Scillies would be incomplete without reference to the world-famous Tresco Abbey gardens. Situated on one of the finest sites on the finest island, here luxuriate masses of tropical and sub-tropical plants. Great feathery Palms—Phoenix canariensis—are in evidence everywhere. The walls of the old monastery are graced with the pendant red flowers of Lapageria rosea, and the air is laden with the pungent scent of the creamy white flowers of Hedychium coronarium. Even in the autumn and winter, flowers are always abundant. At the end of the year, the trumpet-like flowers of Datura sanguinea were giving a brilliant splash of colour to the old Rose garden and the Lobster Claw Flower or New Zealand Glory Pea, Clianthus puniceus, was in bloom. Masses of the purple bracts of Bougainvillea glabra are a common and beautiful sight out of doors, and the golden yellow of the fruit of the large Citron is strikingly evident. The gardens teem with interest for the garden and flower lover—the great natural rockeries alone would absorb days of the visitor's time. And for guide the visitor may have a grand old gentleman who has grown up with the gardens. His work has not been toil, but an all-absorbing interest. He has been building now for fifty-five years in these gardens, and has neither known nor wished for any other life. Kindly, shrewd, and possessing a fund of knowledge that a university professor might well envy, Mr. James Jenkins is more than head gardener—he is an institution within the beautiful gardens of Tresco Abbey. *Sidney P. Weils, General Manager to Major A. A. Dorrien-Smith, Tresco, Isles of Scilly.*

FLORISTS' FLOWERS.

LATE CHRYSANTHEMUMS.

To the *Gardeners' Chronicle* of January 21, 1922, I contributed an article under the above heading, which brought me several replies and a fine batch of cuttings of the Chrysanthemum Autocrat, a variety I had especially alluded to. A year's experience has proved it, in my opinion, to be synonymous with Cheshunt White, and in one catalogue I see it is now listed as such. Another interested reader sent me Enfield White, which has also proved identical with the two first-named. Synonyms are evidently on the increase amongst Chrysanthemums—which is a pity. But under whatever title growers have it, there is no doubt of the value of Autocrat for late blooming, as this year, owing to the favourable autumn of 1922, good blooms will not be uncommon in March. Another good late white sort I have found in Madame Dupree. This was sent me as an incurved, a few seasons ago; it has a stronger habit altogether than Autocrat, and as a consequence the latter will not increase in favour with me. The blooms are of the usual size for a decorative sort, and when grown for January and later flowering they are more reflexing than incurved, and the colour is pure. The Favourite has now established itself amongst reliable late whites, and I know of none with a more pleasing habit.

The illustration which appeared in the issue of January 6 (Fig. 2, p. 6) of the old yellow variety W. H. Lincoln will doubtless tempt many to give it another trial with, I am afraid, meagre results, unless a clean, rested stock is obtained. The writer, in an article accompanying the illustration referred to, would have us believe that Chrysanthemums do not deteriorate, but he clears himself with a word of warning against slipshod methods of propagation and culture. Therein lies the secret. It is not the privilege of all private gardeners—not that many would regularly avail themselves of it if they could—to grow a batch of several sorts each year on the "resting" principle; the majority are satisfied to grow a good thing for just so long as their methods of propagation will permit profitably, trusting that amongst newer introductions there are sure to be some to act as worthy successors. Market growers are concerned only with profits, and means towards that end must come before new names. Yellow Thompson, if so old as W. H. Lincoln, does not appear to have deteriorated to the same extent as the latter.

From the same source as Autocrat I received a yellow Chrysanthemum, which goes under the name of Liverpool. It is a free-grower, with medium-sized incurved blooms of the richest yellow. As a December-flowering variety it is a desirable acquisition. Winter Gem is also good. Now that The Favourite has given us a pink sport, a long-felt want will soon be supplied. In the meantime Bertha Lachaux, well grown, is a dependable variety in the richest pink, for flowering in January. Corcyne, a variety I had sent from Cornwall, is even later, and being a much better doer than the last-named will doubtless soon take its place. Winter Glow is another pink sort with a habit somewhat like December Gold. Another lovely pink Chrysanthemum for December is Mdlle. L. Charvet: it is remarkably free in growth, and good disbudded or in sprays. Pink Pearl still continues satisfactory.

The best crimson I have grown is Mrs. Geo. Monro, a variety of exhibition fame. It makes a grand bush for Christmas flowering on account of its free but dwarf habit. Rooted late and finally potted into 7-inch pots, the blooms are of a useful size, and very rich in colour. Similar remarks apply to another exhibition variety—Nurse Cavell.

Of late singles Mrs. A. Robertson is a fine, clear pink for December, and is at its best in sprays. J. J. Morris, a bright golden-yellow, is also reliable. Sandown Radiance, though at its best grown on exhibition lines, is nevertheless easily kept back, and crimson-red is a useful colour. The really indispensable late single is Mary Morris, with a grand, bushy, dwarf habit, and its blooms closely resemble those of Mary Richardson in colour. *Y. G.*

LATE APPLES AND PEARS AT GUNTON PARK.

Mr. Wm. Allan, who has been in charge of the gardens at Gunton Park for very many years, has a reputation as a grower and raiser of hardy fruit, and his name, coupled with Gunton Park, has been well known by gardeners and garden lovers for a great many years.

Those who were present at the Norwich Horticultural Society's Chrysanthemum show last November witnessed Mr. Allan's ability in the cultivation of hardy fruit. His Pears were especially fine, some of the individual fruits turning the scale at 23 ounces.

The fruit room at Gunton Park is especially interesting at the present time, because the contents show clearly a selection of the best late varieties of Apples and Pears. The following lists of some of the best sorts may be of interest to other growers.

Of Apples, the variety Winter Ribston is held in high esteem at Gunton Park, and it is a pity this choice dessert variety is not better known. Its quality is first rate, and, being of a medium size, is very suitable for dessert purposes. The season for this Apple has been given as October-November, but here it is kept successfully until January-February. The variety William Crump is also grown to perfection at Gunton, and is found to keep well. As a dessert sort, this Apple is likely to rival the popular Cox's Orange Pippin, which is one of the parents of William Crump. The crop of Cox's Orange Pippin was exceptionally large here last year. Claygate Pearmain, Hornmead's Pearmain and Christmas Pearmain also do well here, and they are well known as good, late dessert Apples.

Of the Pippins we have Allington Pippin, Woodstock Pippin, Bowhill Pippin, Col. Harbord, Sturmer Pippin, and Ribston Pippin all good late sorts, and of a useful medium size

Three popular Russets grown here for late use are Brownlee's Russet, Egremont Russet and Aromatic Russet. The Houblon, Baumann's Reinette and the American Mother Apple are all keeping well.

Included among the culinary sorts still in good keeping and which, in many cases will remain good for another three or four months, are Newton Wonder, Gloria Mundi, Beauty of Kent, Encore, King of Tompkins County, Striped Beefing and Lane's Prince Albert.

There are, of course, many more Apples grown at Gunton than those I have mentioned. Those I have enumerated are some of the best that are still making a good display in the fruit room.

Of Pears, mention need only be made of a few to show that a good collection is grown at Gunton Park. Doyenné du Comice, Glo Morceau, Santa Claus, Soldat d'Esperen, Beurr Bachelier, Beurré Clairgeau, Beurré de Aren berg, Charles Ernest and Josephine de Malines, are a few of the carefully selected collection at Gunton Park.

One Pear worthy of special mention is Blickling. It is a good-looking fruit of hig quality, and is very useful for dessert purpos during February. *H. W. Stenning, Gunto Park Gardens.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for he opinions expressed by correspondents.]

An Educational Fruit Exhibit at Stafford.—or the purpose of encouraging the cultivaion of hardy fruits in the Midlands, and as demonstration of what may be accomplished y good cultivation, Lord Stafford, of Swynneron, Stone, Stafford, set up a large exhibit at he fruit show held in the County Technical chool, Stafford, in November last. This exibit, Fig. 48, occupied a space of fourteen eet by six feet, and included thirty distinct arieties of Apples and Pears arranged in varius receptacles, so as to show their value for arket, as well as methods of packing, while thers were shown on dishes, as displayed in he ordinary classes at fruit shows. The prinipal varieties of Apples shown were Lane's rince Albert, Newton Wonder, Annie Elizaeth, Lord Derby, Bramley's Seedling, Allingon Pippin, Cox's Orange Pippin, Gascoyne's carlet, James Grieve, and Ellison's Orange, hile Doyenné du Comice and Pitmaston uchess were the principal Pears on view. The xhibit attracted a great deal of attention, and as much admired for the evidence it afforded f good cultivation, as well as for its educaional value. Lord Stafford and his able garener, Mr. M. Quinn, are to be congratulated pon their effort. *C.*

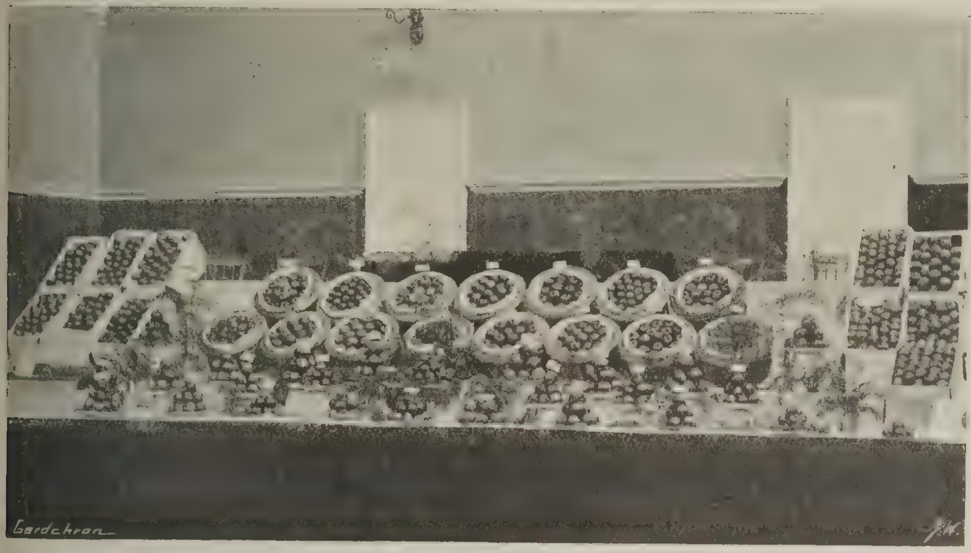


FIG. 48.—LORD STAFFORD'S EXHIBIT OF FRUIT AT THE STAFFORD FRUIT SHOW.

"To Chortle."—I am interested in the nglish of the *Gard. Chron.*, and in that f its correspondents. But valuable as the *ard. Chron.* is horticulturally, it is, perhaps, ot the most suitable place to discuss philogical questions, except to a limited extent, in far as they relate to horticultural contriutions, though simple inquiries may be peritted by the Editor. In a recent article Sir erbert Maxwell tells us that "amateurs are rone to chortle." What does chortle really ean? Is it a Scotch word, an English one, or mere provincialism? One can, of course, give guess, but the guess may be wrong. In the outh I hear young men occasionally use the ord, but I have hunted everywhere I can for . I have consulted at least twenty dictionies, some slang, some provincial, without esult. *The Oxford Dictionary* may contain a efinition of it, but that work is not available r me for the present. *C. H. P.*

Stored Apples.—Many growers stored Apples st autumn, and most of them must regret having one so. For some weeks they have been lling at prices lower than those ruling hen they were picked. I have just sold me Blenheim Pippins, which would not have pt longer in good condition. They made . per bushel less than when stored away. The case of those who stored Cox's Orange Pippin is even more serious. Fortunately Apples are keeping very well, so that such varieties as Bramley's Seedling and Newtown Wonder can be held. There must surely come a time when imported fruit becomes less plentiful, and they will be wanted. *Market Grower.*

Jane Loudon.—I have not at hand Mr. Brotherston's article, concerning which Mr. Britten has contributed so many interesting facts in the *Gard. Chron.* of February 10, p. 77, and so I do not know if he mentioned Mrs. Loudon's *Short Account of the Life and Writings of John Claudius Loudon*, London. 1847, of which I have a copy. My copy is interesting because it is inscribed "—— Libri Eqr. Presented by Mrs. Loudon, Bayswater, Jany. 8, 1851." This was Guglielmo Libri, the notorious book collector, who lived for many years in London, which he found a more healthy dwelling-place than the Continent. He had a very fine taste for rare books, but very little in differentiating between *meum* and *tuum*. The *affaire Libri* was very much in the public eye in France and elsewhere in the middle of the last century, as may be gathered from the catalogues of the British Museum and London Library. To return to Mrs. Loudon, in *The Family Economist* of April 7, 1860, there is an interesting article on Kensal Green Cemetery, with a woodcut of the monument to J. C. Loudon. Close by, states the writer of the article, is a stone, "more recently erected, recording the death of the wife of the above"; and on part of this stone is the following inscription: "Mrs. Loudon will never again shed the light of her genius and industry over the most captivating of our intellectual pleasures, yet by no true lover of flowers will her fame be forgotten, or her works laid aside, So long as English gardens shall be cultivated, or English flowers cherished, Mrs. Loudon's name will be remembered." *W. Roberts,* 18, *King's Avenue, S.W.*4.

——In *Pot-Pourri from a Surrey Garden*, Mrs. Earle devotes several pages to Mrs. Loudon and her writings. The detail mentioned by Mr. Britten in *Gard. Chron.*, p. 77, as being additional to that contained in the article on p. 368, December 23, 1922, is given: "The Loudons lived in a charming house at Bayswater, which was then quite in the country, and *The Gardener's Magazine* alone brought him in £750 a year. Soon after their marriage they saw at Chester, in 1831, the first number of Paxton's *Horticultural Register*, the earliest rival to *The Gardener's Magazine*, which gradually declined from that time." . . . "The original debt on Loudon's *Arboretum et Fruticetum Britannicum* . . . was £10,000 . . . this great work has not yet been superseded, though it calls for re-editing." Mrs. Earle also mentions that at one time she thought of giving some account of the Herbals and botanical works at the library of the South Kensington Natural History Museum. She states, however that this proved to be too ambitious an undertaking. There appears to be a revival of interest in old garden literature, and probably some keen gleaner has already acted on this suggestion. *Fred W. Jeffery.*

SOCIETIES.

ROYAL GARDENERS' ORPHAN FUND.

The thirty-fifth annual meeting of the Royal Gardeners' Orphan Fund was held on Thursday, the 8th inst., at Simpson's Restaurant, Strand. Mr. Leonard Sutton presided, and there were present Messrs. D. Ingamells, J. M. Bridgeford, J. Gregory, J. Linford, W. Howe, W. Bates, Geo. F. Tinley, J. Wort, A. Dawkins, R. B. Leech, Chas. H. Curtis, Geo. Reynolds, D. Swain and W. P. Thomson.

After the minutes of the previous annual meeting were read and confirmed, the chairman submitted the Annual Report of the Committee for 1922, of which the following are the more important items:—

EXTRACT FROM THE REPORT.

In presenting the thirty-fifth annual report dealing with the general position and prospects of the Fund and in particular with the work during 1922, your Committee is enabled to record another satisfactory year in the affairs of the Institution. The appeal for monetary aid has been splendidly responded to, and the raising from all sources of a sum of nearly £2,000 on behalf of the orphans of gardeners cannot be considered other than gratifying in these difficult financial times.

Your Committee has been enabled to meet the claims of all deserving cases during the past year, and have pleasure in recommending the election of fourteen candidates to-day to receive the full benefits of the Fund without the need of a ballot. This will bring the number of children who are enjoying the benefit of the charity up to one hundred and six. Gratifying as this is, your Committee realises that the calls on the Fund are sure to increase in the future, as many dependents of gardeners are now receiving help from the Ministry of Pensions, but with the lapse of time there are bound to be many sad cases of gardeners' widows and orphans who will have no claim to Government assistance. Already this is reflected in the number of cases before us to-day.

It is the earnest desire of your Committee to restore the investments to their pre-war amount at the earliest opportunity. To do this, as well as carry on the yearly commitments will need the utmost efforts of all who have the welfare of the Fund at heart, but the Committee are sure that all will recognise the wisdom of having a strong reserve fund, and do their utmost to put the finances on their former sound basis.

The Committee are greatly encouraged by the splendid amount realised at and in consequence of the annual festival dinner held at the Connaught Rooms on May 9, under the presidency of Mr. Lionel de Rothschild, O.B.E., M.P. There were one hundred and fifty-nine supporters of the Fund present, and the dinner proved to be one of the most successful of the series.

Your Committee gratefully record the formation of a Trust Fund in connection with the Worshipful Company of Gardeners, sufficient to provide an allowance to an orphan boy in perpetuity.

A very valuable source of income is that contributed by horticultural societies in various parts of Great Britain, and the Committee desires to express their wholehearted thanks to the members of those societies, and especially to the secretaries and others who have been the means of collecting the amounts.

Very substantial amounts have also been received from Mr. F. C. Stainsby, Brocklesby Park Gardens, Lincolnshire; Mr. W. Auton, Pyrford Court Gardens, near Woking, and Mr Thomas C. Cook, Royal Gardens, Sandringham, all of whom organised entertainments on behalf of the Fund. Your Committee would welcome the co-operation of others, and especially gardeners, in instituting similar schemes for augmenting the Fund's finances.

Amongst the special contributions received during 1922 was a legacy of £20 bequeathed by the late Mrs. William Wildsmith, whose husband's memorial of £138 14s. 9d. heads the list of the Fund's memorials, legacies, etc., having been received so far back as 1890.

All will regret the absence of the Secretary, Mr. Brian Wynne, through serious indisposition, and will wish him a speedy recovery from his prolonged illness.

The cash statement showed total receipts, including a balance of £957 12s. 7d. from the last year's accounts, of £2,874 6s. 9d. The chief sources of income being subscriptions, £217 7s. 2d.; donations, £209 18s. 11d.; proceeds of the Festival Dinner, £1,110 4s. 0d., and dividends from invested funds, £293 0s. 6d.

The chairman, in moving the adoption of the report and statement of accounts, regretted the absence of two important officials, Mr. Edward Sherwood, the Treasurer, and Mr. Brian Wynne, the Secretary. The former was on his honeymoon, and on behalf of the Fund he wished him every happiness. The absence of the Secretary was, he regretted to state, due to serious illness, but although he was still very indisposed and suffering much pain, he was informed by the Chairman of the Committee, Mr. David Ingamells, that he was progressing slightly towards recovery.

The Fund had cause for congratulation in raising the sum of £2,000 for gardeners' orphans during the past difficult financial year. The work involved in gathering this sum, most of it in small amounts, was very considerable, and needed the full assistance of all; he urged everyone to do their best for such a splendid institution.

The adoption of the Report and Balance Sheet was moved by Mr. W. Bates, and carried without further comment.

After a hearty vote of thanks had been passed to Mr. Leopold de Rothschild for presiding at the annual festival dinner, and his election as a Vice-President of the Fund, the election of officers was proceeded with. Mr. Edward Sherwood was re-elected Treasurer. The retiring members of the Committee were all re-elected; the retiring Auditor, Mr. Peter Barr, was re-appointed, and Mr. Brian Wynne re-elected Secretary.

General regret was expressed at the cause of the Secretary's absence, and it was stated that it was the first annual meeting he had missed since the inception of the Fund 35 years ago. The Chairman of the Committee, Mr. David Ingamells, stated that Mr. Wynne had been granted special leave of absence by the Committee. On the proposition of Mr. C. H. Curtis, seconded by the Chairman, it was decided to send a message of sympathy and the good wishes of the meeting to Mr. Wynne, with hopes for his speedy recovery.

The meeting then proceeded to the election of fourteen candidates to the benefits of the Fund by resolution. On the proposition of Mr. W. Bates, seconded by Mr. John Gregory, the following fourteen children were elected, Ernest John Smith being the nominee of the Worshipful Company of Gardeners: John Axford, Lionel Axford, Edward Trevor Bridle, Doris Kathleen Bridle, Ethel Marjorie Burgess, Mary Irene Burgess, Elizabeth Alice McKenzie, Jean Thompson McKenzie, Ethel Massey, Mary Annie Massey, Mary Katherine Shadbolt, Audrey Eunice Smith, Ernest John Smith, and Norman Peter Smith. A vote of thanks to the Chairman concluded the proceedings.

ROYAL CALEDONIAN HORTICULTURAL.

February 6.—The first ordinary monthly meeting of this Society for the session was held at 5, St. Andrew Square, Edinburgh, on this date, Mr. M'Hattie, president, in the chair. The president delivered his inaugural address, taking as his subject "The City Beautiful," and by the aid of lantern slides showed by comparison with similar subjects which came under the influence of real artists in floral decoration how dismal backyards and front garden plots could be transformed into objects of real beauty by the simplest of treatment. Garden plots and backyards played an important part in the making of the city beautiful, and one of the objects of the Society was to encourage the owners of such plots of ground to convert them into pleasant gardens, and thereby bring better health and greater happiness to the inhabitants.

The exhibits were: Iris tingitana from the Public Parks Department, per Mr. M'Hattie; Persian Cyclamen from Allan L. Menzies, Esq., Larchgrove, Balerno; Vegetables from Mr. J. W. Scarlett, Sweethope, Musselburgh. Each of the exhibitors was awarded a Cultural Certificate.

ROYAL HORTICULTURAL.

February 13.—As is usual on the date of the Annual Meeting, there was an excellent exhibition of flowers and fruits and a large attendance of Fellows. The hall was well filled, and the principal subjects shown were Cyclamens, Carnations, Orchids, Daffodils, Tulips, early spring flowers, Primulas, Azaleas, and Oranges in fruit. The Floral Committee had a busy session owing to the large number of groups, but novelties were not numerous. The Fruit and Vegetable Committee had little to do. The first meeting of the Narcissus Committee for the season was a small one, and it was chiefly occupied with domestic affairs, *i.e.*, the Daffodil Show and the Classification List. The Orchid Committee found plenty to do as novelties and groups were numerous

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), G. F. Moore, C. J. Lucas, Fred K. Sander, S. W. Flory, H. T. Pitt, J. E. Shill, A. McBean, W. J. Kaye, E. R. Ashton, Stuart H. Low, Fred J. Hanbury, J. Wilson Potter, J. T. Barker, John Cypher, Henry H. Smith, H. G. Alexander, and Chas. H. Curtis.

First Class Certificates.

Odontonia Baroness Schroder (*Miltonia Bleuana Pitt's var.* × *Odontoglossum The Czar*), from Messrs. Charlesworth and Co., Ltd., Haywards Heath. One of the greatest productions, with outstanding merits which cheer the patient hybridist in his intricate workings. The flower has much of the form of M. Bleuana and its size, but the colour is gorgeous and quite unlike any other of its class. The sepals and petals are bright vinous-purple, with slight white margins; the broad lip is beautifully marked with ruby-purple.

Dendrobium Gatton Monarch var. F. J. Hanbury (*Lady Colman* × *nobile nobilius var. A. A. Pearson*), from Frederick J. Hanbury, Esq., Brockhurst, East Grinstead (gr. Mr. Matthews). D. Lady Colman is one of the finest of hybrid Dendrobiums, and its influence in the present hybrid, the type of which was raised at Gatton, is most satisfactory. The flowers are the size of the well-known D. Wardianum, the sepals and petals white with a heavy tinge of rosy mauve, the large lip being deep maroon at the base, with white zone and rose-pink apex.

Odontoglossum Purple Queen (*percultum* × *Dusky Monarch*), from J. J. Bolton, Esq., Claygate Lodge, Claygate (gr. Mr. S. Lyne). A grand Odontoglossum, originally raised by Messrs. Charlesworth, who flowered it in 1921. The variety shown by Mr. Bolton has flowers of fine shape and substance, deep violet-purple with a slightly lighter margin and front to the lip.

Cultural Commendation.

To Mr. H. G. Alexander, gr. to Lt.-Col. Sir Geo. L. Holford, K.C.V.O., Westonbirt, for six splendidly grown plants of the pure white Cattleya Percivaliana Lady Holford, a charming Cattleya and very floriferous.

Groups.

A Gold Medal was awarded to Messrs. Charlesworth and Co., Ltd., Haywards Heath, for a magnificent group arranged in a space 35 feet by 6 feet, and containing a fine set of novelties. The back was of richly-coloured Odontoglossoms arranged with their snow-white xanthotes hybrids, a fine plant of O. ardentissimum xanthotes bearing a branched spike of sixty-five flowers. Odontioda Beryl and other richly-coloured Odontiodas gave fine colour; well-bloomed Calanthes with their arching spikes gave good effect, and Cattleyas, Laelio-Cattleyas and Sophro-Laelio-Cattleyas were shown in profusion.

Messrs. Cowan and Co., Ltd., Southgate, obtained a Silver Flora medal for a splendid group with many very fine Cypripediums, the best of which was C. Lord Wolmer var. Duke of Marlborough, a model flower of nice colour; Laelio-Cattleya Dodona was represented by a rich vinous purple form; L.-C. Hasselli alba had large pure white flowers with crimson lip. Good forms of Cattleya Tityus were also shown, the variety Princess being the best.

Messrs. J. Cypher and Sons, Cheltenham, had a fine group principally of Cypripediums, among which were noted Scipio, Hercules, Monarch, Nivinable, Archie Neild, Troilus varieties, Bridgesii, Alcibiades illustris, Princess Patricia, Snow Queen, Queen of Italy, Helen II. Westonbirt var., Hermes, Vandyke, and a large number of C. insigne crosses of fine type.

Messrs. J. and A. McBean, Cooksbridge, were awarded a Silver Flora Medal for a select group in which the varieties of their elegant Laelio-Cattleya Eunice (C. chocoensis alba × L. anceps alba) were attractive features arranged with both the parents, Messrs. McBean's form of C. chocoensis alba being the best ever introduced; Laelio-Cattleya Schröderae, white with purple lip, was an effective centre-piece, and with it were Sophro-Laelio-Cattleya Rosalind and other Sophronitis crosses, Phaius Norman, one of the best of the Norman C. Cookson crosses, and good Cattleyas.

Messrs. Sanders, St. Albans, received a Silver Flora Medal for a very interesting group, the central feature of which was a selection of their fine violet-purple winter flowering Laelia Gouldiana, around which were arranged the white Vanda Wilsonii, a very fine selection of Odontoglossums, Odontiodas and Cypripediums. Among those especially noted were the new Laelio-Cattleya Aethropian (bletchleyensis × Aphrodite), a distinct flower; white Cattleyas, C. General Pulteney, and some singular species, a pretty Bulbophyllum being probably new.

A Silver Banksian Medal was awarded to J. J. Bolton, Esq., Claygate Lodge, Claygate, for a very nice selection of Dendrobiums, Odontoglossums, and Sophro-Laelias.

Other Exhibits.

Sir Jeremiah Colman, Bt., Gatton Park (gr. Mr. Collier), showed a new Odontioda with clear, lemon-yellow ground, showily marked with reddish purple, a very distinct hybrid with Odontoglossum shape; the elegant white Dendrobium fusiforme with several spikes, and a probably new and very curious Dendrobium with dwarf-pseudo-bulbs netted with brown fibre and a short two-flowered inflorescence of purple flowers.

Pantia Ralli, Esq., Ashtead Park (gr. Mr. Farnes), sent Odontioda Rubicon with rich claret-red flowers.

R. Gerrish, Esq., Milford Manor, Salisbury (gr. Mr. Sorrell), sent grand forms of Cattleya Tityus Gerrish's var., Odontioda Lerna Gerrish's var. of a rich claret-red colour, and Odontoglossum crispum Sir Bedivere, a large white flower with a blotch on the lateral sepals

Messrs. Stuart Low and Co., Jarvisbrook, Sussex, staged a selection of good Cypripediums, Dendrobiums, and Cattleyas. An interesting plant was the rare Bulbophyllum sillemianum.

Frederick J. Hanbury, F.L.S. (gr. Mr. Matthews), sent his new and very beautiful Dendrobium Florence E. King.

A very cleverly executed collection of paintings, including Orchids, was shown by Miss Hilda M. Coley, Four Oaks, Birmingham.

Floral Committee.

Present: Messrs. H. B. May (in the chair), John Heal, W. J. Bean, G. Harrow, G. Reuthe, W. Howe, C. R. Fielder, J. F. McLeod, H. J. Jones, J. B. Riding, M. C. Allwood, W. H. Morter, J. Jennings, W. H. Page, Amos Perry, Donald Allan, W. B. Cranfield, Reginald Cory, R. C. Notcutt, E. A. Bowles, H. V. Warrender, Clarence Elliott, W. G. Baker, G. W. Leak, W. P. Thomson, D. B. Crane, J. W. Barr, Hugh Dickson, Andrew Ireland, C. Williams, Chas. E. Pearson, Chas. E. Shea, H. D. McLaren, Arthur Turner, W. B. Gingell and Jas. Hudson.

First-Class Certificates.

Rhododendron Ne Plus Ultra.—A fine old variety of the Javanicum group of greenhouse hybrids raised many years ago by Messrs. Jas. Veitch and Sons; indeed, it received an Award of Merit so far back as 1894. The rich orange-red flowers are borne in large trusses, and a big plant like the one shown on this occasion, with eight trusses of bloom (and others to open), is very effective, and a fine example of skilful cultivation. Shown by Sir George Holford (gr. Mr. Clarke), Westonbirt, Tetbury, Gloucester.

Awards of Merit.

Prunus Conradinae.—A charming early flowering Prunus from Western China. The stems, except in the case of recent growth, are blackish, and contrast with the white, often blush-tinted flowers, which are freely produced in clusters of from three to five, at the ends of short twigs. A distinct and useful addition to early flowering trees. Shown by the Director, Royal Gardens, Kew

Primula calciphila.—This species from the limestone cliffs of Ichang, Western China, promises to be a useful pot plant for conservatory decoration as it flowers abundantly in 48-sized pots. The individual flowers are rather more than an inch across, pale mauve, with soft lemon yellow eye, and with a notch in the apex of each of the five segments. The leaves much resemble those of the sinensis type, but are smaller and dull green. The whole plant from the rim of the pot is about eight inches high, and such a plant may carry a dozen spikes and each spike eight or nine expanded flowers. Shown by the Director, Royal Gardens, Kew.

Groups.

What was probably the most meritorious exhibit of Cyclamen that the show-attending public has ever seen was made by Messrs. Sutton and Sons. Not only was the quality exceptionally high, but it was a most extensive collection. Generally it was arranged in colour blocks, but these were artistically broken by baskets and occasional specimen plants in an ornamental vase of such sorts as Giant Rose Queen, Vulcan, Giant Crimson and White, Sut-on's Silver-leaved Salmon, Giant White and the curiously beautiful crested varieties. Amongst he many hundreds of plants there was not one which would not have been a source of legitinate pride to any cultivator of greenhouse plants. On a staging at the opposite side there was a smaller collection of Primula sinensis varieties, and these evidenced the same high-class strain and expert cultivation as the Cyclamens. Most fascinating amongst the Primulas were the plants of Symmetry and Silver Star. These floriferous varieties are especially grace-ul. Of the typical P. sinensis varieties the deep rimson Etna and Intensity compelled unstinted dmiration (Gold Medal).

A collection of forced Azalea mollis-sinensis eedlings was contributed by Messrs. R. and G. Cuthbert, and the warm, glowing colours of the plendid plants were very attractive.

Adjoining the Azaleas Messrs. Cuthbert had pretty collection of miniature Hyacinths and rises. Greenhouse Azaleas with forced de-iduous shrubs were well shown by Messrs. . R. Russell, Ltd.

Carnations were shown in greatly increased uantities and of high quality. Messrs. Allwood Bros. set up a large collection of first-lass blooms, giving especial prominence to Wivelsfield Claret, Edward Allwood and the ragrant Mary Allwood (Silver Flora Medal). Mr. C. Engelmann included such valuable sorts s Tarzan, Carola, Lady Northcliffe, Boadicea nd Improved Waud in a large collection (Silver-ilt Flora Medal).

Carnations of high quality and in good quan-ty were also shown by Messrs. Stuart Low nd Co., who made a special feature of White Pearl, Mrs. Hamilton Fellows and Reginald ory. In addition to the Carnations some well-rown plants of Mimosa (Acacias) and Hip-eastrums were shown (Silver Banksian Medal).

A very praiseworthy collection of greenhouse yclamen was arranged by E. Wormald, Esq. gr. Mr. R. Lay), Sheepwell House, Potters ar. The very many plants all evidenced ilful cultivation (Silver Banksian Medal). yclamens, illustrating a good strain, were also ell shown by Messrs. Blackmore and Lang-on, who added smaller groups of Primula mala-ides and Blue Primroses (Silver Banksian edal).

Just inside the entrance Messrs. Carter and Co. had an attractive display of Hyacinths, Tulips, Primula sinensis and P. malacoides varieties in shallow, ornamental baskets (Silver Banksian Medal). Messrs. Moyses Stevens, Ltd., again contributed well-grown Azalea indica in variety, Hyacinths and other spring bulbs. Messrs. Wm. Paul continued to show very floriferous bushes of Camellias, and on the present occasion the exhibit was of even greater value than its predecessors (Silver Flora Medal).

Violets were represented by a large number of bunches of most desirable flowers. Miss E. Heathcote staged a large quantity of Violet Princess of Wales of exceptional size (Silver Banksian Medal). In the annexe Mr. J. J. Kettle had an interesting collection of fragrant varieties and Messrs. R. Gill and Son included some with their Rhododendrons and Anemones.

Himalayan Rhododendrons were shown in moderate quantity and in sufficient variety to interest lovers of these beautiful flowering shrubs. The greatest variety was shown by Lady Aberconway, Bodnant, Tal-y-cafn, N. Wales, and this exhibit would have increased in effect had the trusses occupied less space. The central stand contained several interesting forms of the early-flowering Rhododendron Nobleanum. Silbred's Early Pink, of the hardier sorts, was also shown well, while the delicate colouring of R. sutchuenense was appreciated by many of the visitors (Bronze Banksian Medal). Messrs. R. Gill and Son brought some Rhododendrons from Falmouth, but their collection of Anemones, named Gill's Giant, and of St. Brigid type, attracted most attention, by reason of their exceptionally good quality. Amongst his customary exhibit of uncommon shrubs and alpines Mr. G. Reuthe had a few trusses of early Rhododendrons.

No doubt owing to the exceptional earliness of the season, there were more alpines in flower than is customary at mid-February meetings, and, although some of the species and varieties were not quite in season, they had not been forced unduly. A very meritorious exhibit was made by Mr. Mark Fenwick, whose many plants of Saxifraga burseriana Gloria bore countless flowers of unusual size and purity of petal. Saxifraga Irvingii was also represented by several pans of splendid plants (Silver Flora Medal).

In the annexe Messrs. R. Tucker and Sons had an interesting variety of alpines in small pots. The many plants of Primula Juliae bore flowers of intense colouring (Silver Banksian Medal). Messrs. Skelton and Kirby had several large bushes of Erica carnea in full bloom amongst their collection of alpines. Mr. G. W. Miller again staged a number of his Polyanthuses of a good strain, and also showed Primroses and Daisies (Silver Banksian Medal).

The deep-red flowers of Pulmonaria rubra were very prominent in an exhibit by Messrs. Waterer, Sons and Crisp, who also included several useful Crocus species and Narcissus minimus (Silver Banksian Medal). At one end of their alpine exhibit Messrs. Carter Page and Co. had a batch of Anemone blanda albo-coerulea, which provided a welcome blue colouring. They also had plants of Primula denticulata and Grape Hyacinths.

Daffodils and Narcissus in variety, with Hyacinths, formed a floriferous background to the collection of alpines displayed by Messrs. Barr and Sons. Near the entrance Messrs. W. Cutbush and Son arranged excellent plants of Azalea indica varieties, and adjoining them made an informal rockery of pleasing design, which they furnished with suitable plants (Silver Banksian Medal). A small alpine exhibit was made by Messrs. Bakers, Ltd.

An attractive little rockery arranged by Messrs. J. Cheal and Sons served to display various low shrubs, particularly splendid bushes of Andromeda floribunda, and some alpines. Messrs. R. Wallace and Co. had a number of bushes of the fragrant Viburnum Carlesii in flower, and also showed Crocus species. Mesembryanthemum turbinatum roseum and the white variety were included in an exhibit by Messrs. Maxwell and Beale. The tiny little Bellis sylvestris was shown by Mr. Clarence Elliott and Mr. M. Prichard in their alpine exhibits, while Mr. G. G. Whitelegg included some plants of Saxifraga longifolia, which had unusually large rosettes of foliage.

Narcissus Committee.

Present: Mr. E. A. Bowles (in the chair), Mrs. Brodie, and Messrs. W. W. Fowler, H. V. Warrender, G. Churcher, Peter R. Barr, G. Reuthe, W. Poupart, F. H. Chapman, and C. H. Curtis (Hon. Sec.).

Mr. Van der Weyer submitted a pot of the dainty little Narcissus Bulbocodium nivalis, which was greatly admired. Messrs. R. H. Bath showed a handsome pale yellow poetaz variety named Orange Cup, and the same firm arranged a large group of Daffodils and Tulips growing in bowls and pans, in fibre; the King Alfred Daffodils and Mon Tresor Tulips were unusually fine. Hyacinths and Irises completed an attractive exhibit (Silver-Gilt Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (chairman), W. Poupart, A. H. Pearson, W. P. Seabrook, J. Cheal, Owen Thomas, G. Reynolds, H. Prince, Geo. F. Tinley, E. Neal, G. Woodward, W. Bates, W. H. Divers, W. Wilks, S. B. Dicks, H. S. Rivers, E. A. Bunyard, J. C. Allgrove, H. Markham, A. Bullock, E. Beckett, A. C. Smith, P. C. M. Veitch, F. Jordan, E. Harriss, A. N. Rawes, J. Harrison, and H. V. Taylor.

A bunch of the seedling Grape Ecclesdon, cut on February 12 and weighing 2 lb. 1 oz., was shown by Mr. W. Butcher, of Ecclesdon Manor. It was stated that this new variety was being grown at Wisley under trial.

Mr. N. F. Barnes showed two new Apples he has raised at Eaton Hall gardens from Cox's Orange Pippin crossed with Gascoyne's Seedling. They were the results of reciprocal crossings; the one, Gascoyne's Seedling × Cox's Orange Pippin was named Millicent; the other, Cox's Orange Pippin × Gascoyne's, was named Arthur Barnes. The latter was the better and was recommended for inclusion in the trial of commercial varieties at Wisley. It is a showy fruit of medium size, broadly conical in shape, with very regular outline, so that it would lend itself well for packing; has a shallow eye, short stalk, and is of a deep red colour. The flesh is of good quality, juicy, and of fair flavour.

Messrs. Dobbie and Co. showed 19 baskets of excellent Potatos, some remarkably large Parsnips of Dobbie's Selection type, and roots of Model White and Golden Ball Turnips. The Potatos were extraordinarily good, and included such sorts Di Vernon(Climax, Crusader, Arran Comrade, Arran Rose, Majestic, King Edward, and Immune Ashleaf (Silver Knightian Medal).

Messrs. T. S. Rivers and Son were awarded a Gold Medal for trees and fruits of Oranges, Lemons and other Citrus fruits. The trees were splendidly cropped, the large specimens of Orange Silver and Citrus corniculata having 60 and 50 large fruits respectively, and presenting very imposing features. There was also a big tree of Citron of Paradise, with numerous fruits the size of Grape Fruits. The Oonshiu or Satsuma Orange is hardy in this country. Large collections of gathered fruits with small Orange trees in flower contributed to an exhibit of great interest.

Messrs. E. Westmacott and Co., 368, Strand, London, were awarded a Silver Knightian Medal for Plums, Peaches and Nectarines from the Cape. The Plums were exceptionally good; the variety of finest quality was named Apple Plum. Others were Satsuma, Santa Rosa, Duarte (red-fleshed), and Chalcot, the last a broad, round Plum somewhat like a Nectarine in appearance.

Annual meeting.

The lecture room was filled to overflowing on the occasion of the annual meeting and many Fellows were crowded at the entrance. The President, Lord Lambourne, presided, and he was supported by most of the members of the Council. After the formal proceedings of reading the notice convening the meeting and the minutes of the last annual meeting, one hundred and thirty-nine new Fellows and two Associates were elected and six societies affiliated to the R.H.S. The President, who met with a hearty reception, rose to move the adoption of the Report and Balance Sheet. He stated that he was present in direct opposition to his doctor's orders. He said the report would be considered satisfactory as regards membership and finances. The revision of Pritzel's index had proved a longer task than was anticipated, and it would be at least two years before the results would appear in print. The publication of the *Botanical Magazine* was delayed through there being no reserve of drawings. He welcomed the new members of the Council, Mr. E. A. Bunyard, Sir William Lawrence, Bart.—an honoured name, he being the son of Sir Trevor Lawrence; and the Hon. H. D. McLaren, a keen gardener and exhibitor. The Society, said his lordship, owed a special debt to Mr. Nix, who was retiring, the others retiring being Mr. R. W. Wallace and Mr. F. Hanbury. He said much had been heard of Wisley of late, and criticisms offered, but before forming an opinion he asked the Fellows to go there and judge for themselves. There were, he recognised, faults, but when the size of the gardens is considered and the varied interests that had to be catered for there, it was not surprising there was some grumbling. The Council recognised that Mr. Chittenden had been overworked, and they had provided him with an assistant.

The Council was anxious that British horticulture should be well represented at the forthcoming Ghent exhibition, and he appealed especially to amateurs to assist.

He moved the adoption of the Report and Balance Sheet. The Hon. Treasurer, Mr. C. T. Musgrave, seconded, and took the opportunity to refer to some items of the balance sheet. He said that the Society had enjoyed a successful financial year, due in part to the sum of £9,747 received from the War Office as compensation for the acquisition of the hall during the war. This was an exceptional payment.

The Council had increased the sum to £10,000, added £5,000, and placed the £15,000 to a general reserve fund. The annual subscriptions had increased, also the hall lettings, the latter by £1,300, the total receipts from this source being £5,100. Expenditure had increased, the establishment charges being greater. The takings from the shows almost equalled the expenditure on them. Of the miscellaneous expenditure of £920 in the Wisley accounts much was in respect to the growing, packing, and distribution of plants to the Fellows.

Mr. Cuthbertson was called upon by the chairman at this stage to give some details of the Wisley Gardens in reply to criticisms in the Press. Mr. Cuthbertson said all would recognise the difficulty of gardening by a Committee, and the members were not always unanimous in their decisions. They had made an effort to fill the late Mr. S. T. Wright's place, and had advertised for a gardener who possessed sufficient scientific knowledge to bridge the gulf between the garden and the laboratory. They had been unsuccessful in finding a man 75 per cent. practical and 25 per cent. scientific, and had appointed Mr. Simmonds, who was 50 per cent. practical and 50 per cent. scientific, as assistant to Mr. Chittenden. Mr. Chittenden had promised to pull the gardens round, and it was especially urgent to have all plants named correctly.

In response to the Chairman's invitation for questions, the Rev. Canon Fowler asked that the hall should not be let up to the eve of the Society's shows. In reply, the Secretary stated that the present rule was to have all staging ready for exhibitors by 2 o'clock on the Monday. Mr. W. Stephens asked that the agenda should include in future "questions" and "any other business."

The report and balance sheet were adopted.

The election of officers and Council was followed by interesting presentations of the Victoria Medal of Honour to Messrs. C. G. A. Nix, A. C. Bartholomew, J. Lowe, and R. W. Wallace; the Veitch Memorial Medal to Messrs. W. J. Bean and Lloyd Praeger, and the Lawrence Medal to Mr. H. J. Jones. A vote of thanks to the President, proposed by the Rev. W. Wilks, concluded the proceedings. Mr. Wilks stated that it was his 60th annual meeting, and he claimed to be the oldest Fellow present in point of membership.

Obituary.

George Cannon.—We deeply regret to announce the death of Mr. George Cannon, who was for many years manager of Messrs. Lee's famous nursery at Ealing. He died on the 24th ult. in the West Middlesex hospital in his 80th year. Mr. Cannon was for thirty years with Messrs. Lee's, and when the Leeland Estate was sold for building purposes, he took over Mr. Weedon's establishment, known as St. John's Nursery, on his own behalf. Mr. Cannon was well known to frequenters of the Royal Horticultural Society's meetings. During his long residence at Ealing he saw the town develop from a rural district into a great suburb and, as a member of the Ealing Incorporation Committee, he had a share in getting Ealing its charter. He took a great interest in the Ealing Horticultural Society, and was twenty years Secretary, retiring from that office in 1914, when he was elected a Vice-President. Mr. Cannon disposed of his business some three or four years ago, but not until the spring of last year did his health fail him, and up to then he was able to give considerable assistance to his successors in the business. His remains were interred in the Westminster Cemetery, Hanwell, on the 31st ult.

Thomas Winter.—Following closely upon his resignation of the Treasurership of the United Horticultural Benefit and Provident Society, owing to illness, it is our melancholy duty to record the death of Mr. Thomas Winter, which occurred on Thursday, the 8th inst., at Goodmayes. Mr. Winter was for many years superintendent of the gardens and open spaces of St. Marylebone, and only retired from service last year. Previous to taking charge at St. Marylebone, he was employed at the late Baroness Burdett Coutts' Gardens, Holly Lodge, Highgate, under Mr. Jesse Willard. Mr. Winter had a wide experience of gardening in the London district, and his advice on such matters was frequently sought by garden guilds and other societies which aim at brightening the lives of London dwellers by means of the cultivation of plants and flowers. Mr. Winter was the oldest member of the Committee of the United Horticultural Benefit and Provident Society, and occupied the position of treasurer for the past ten years. He had been ailing for some considerable time, and had undergone two operations for internal trouble. He leaves a wife and daughter to mourn his loss. The funeral took place on Tuesday, the 13th inst., at Aldborough Hatch, and was attended by representatives of the society in which he had taken a great interest for five and twenty years.

ANSWERS TO CORRESPONDENTS

Bottle Grafting of Vines: *H. E.* Foster's Seedling Vine is a suitable stock for most varieties of Grapes, and you can safely graft yours with Madresfield Court. Bottle grafting is a sure method of securing a good union, and the best and safest time to graft is just after the first rush of sap is over, or when the vines are approaching the flowering stage. Cut a fairly deep slice from the graft, in the middle, leaving about 5 inches below to insert in the bottle, and about 3 inches above, with a good bud. Take a similar slice from the stock, fit the two cut surfaces together and bind fairly tightly with broad raffia. No other covering of clay or moss is necessary. The operation should be done quickly and neatly; the bottle being kept filled with soft water, with a little charcoal added to keep it sweet. As soon as the graft has grown 4 feet or 5 feet, remove the ties and the bottle; guard against injury, and success is almost certain.

Celery with Pithy Leaf: *C. S. and Co.* The plants are not attacked by a fungus and no organic disease is present. Your suggested explanation of the cause of the pithiness and of grossness of growth is probably the correct one.

Commercial Cultivation of Violets: *H. A. F. M.* With your favourable climate the requirements for the cultivation of Violets will be few and simple. Given a new position each year and a sufficient supply of moisture, you may plant Violets the requisite distance apart and place your frames over them in due course, with every chance of success. The plants will bloom rather earlier than in the open, and the quantity and quality of the crop will be as good as from lifted plants, provided hoeing and cleaning are attended to. Pinch out the early runners during the growing season, and, later, select three or four of the strongest runners from each plant as near the parent plant as possible. This method will provide you with good late flowers, and young plants ready for planting out, also obviate the trouble of dividing the old crowns. You can easily test this method against other plants restricted to single crowns.

Fuel for Heating Greenhouses: *C. F.* We have no personal knowledge of the usefulness or value of the fuel to which you refer, but several of our correspondents have written appreciatively concerning it after putting it to severe tests.

Fumigating Chrysanthemum Cuttings: *C. F.* The reason why some Chrysanthemum cuttings withstood the effects of fumigation better than others may possibly be found in the condition of the cuttings; that is to say, some may have been very soft and newly inserted, whereas others of hardier growth and those already rooted would be better able to withstand the fumes.

Gardener's Wages: *J. McA.* You do not state whether any allowance such as house, coal and vegetables is made. Without such allowances £3 to £3 5s. per week would be adequate, in your district, while 50s. to 55s. with the usual gardener's cottage, etc., would be fair. As you require an experienced man to take charge of your garden, you would lose rather than gain by paying a lower salary to an inexperienced man.

Names of Fruit: *T. H.* (1) Golden Reinette; (2) Herefordshire Pearmain. *Shropshire.* (1) Dumelow's Seedling (syn. Wellington); (2) Queen Caroline; (3) Reinette du Canada; (4) Lord Burghley. *J. P.* Dutch Mignonne (syn. Reinette du Caux). *C. F. G.* (1) Grange's Pearmain; (2) Hambledon Deux Ans.

Pelargonium Leaves Unhealthy: *W. B.* The plants are attacked by the fungus Botrytis, a common disease of cultivated plants. An excess of moisture in the soil and in the air will predispose the plants to attack, as the fungus is usually a secondary agent appearing after decay sets in, such as would be caused by damping. Keep the plants healthy, burn all affected leaves and admit plenty of fresh air in the house.

The Judas Tree: *W. J. H.* Without seeing the tree of Cercis siliquastrum, we suggest that the disease known as "Coral Spot" may be the cause of the growths dying. Our experience with the Judas Tree is that it is not infrequently attacked by this disease, which usually enters through a wound in the bark, caused by a knock with the mowing machine, or the cut surfaces made in pruning. Remove the portions that are dying, cutting back to healthy wood and immediately dressing the cut surfaces with tar. It would be desirable to remove the grass around the tree, corresponding with the spread of the roots, and give a liberal top-dressing of equal parts turfy loam, leaf-mould, and manure from a spent hot-bed or old mushroom bed. The growths dying has nothing to do with the age of the tree; at 30 to 35 years the specimen should be vigorous and healthy, as the Judas Tree lives to a considerable age.

Communications Received.—E. B., Worthing—H. W.—C. T.—W. A. C.—W. H. A.—J. C.—J. B., Mon.—A. V.—W. K.—J. C. W.—S. B. & S.—Dr. P.

THE
Gardeners' Chronicle
No. 1887.—*SATURDAY, FEB.* 24, 1923.

CONTENTS.

Apples, freightage of Australian . .. 100
Bourdichon's figures of Black Currants .. 110
British Empire Exhibition 99
Bulb garden, the 103
Canada, encouragement for horticulture in .. 99
Colour in the garden in winter 104
Cucumbers and Onions 111
Edinburgh Botanic Gardens 104
Flowers out of season .. 99
Forestry—
  The most profitable trees to plant .. 108
Fruit Register—
  Apple Tompkin's King 110
Fruit show, 1923, Imperial 101
"Gardeners' Chronicle" seventy-five years ago 101
Garden notes from S.W. Scotland 104
"George Monro Ltd" Concert 100
Germination 111
Hardy flower border—
  Herbaceous perennials for cut flowers .. 105
Herb garden, the .. 109
Horticultural Club .. 99
Horticulture at the British Empire Exhibition .. 99, 110
Indoor plants— 108
"Irish moss" industry at Brest 100
London Daffodil show .. 100
Loudon, Mrs. .. 110
Lowe, Mr. Joseph .. 100
Manures, the application of artificial .. 101
Obituary—
  Parsons, Samuel .. 112
Orchid notes and gleanings— 101
Plant pathology at the Imperial College of Science 100
Plants, failures with .. 109
Plants new or noteworthy—
  Primula calciphila. 101
Rotation, manures or fertilisers 99
Scotland, allotments in 99
Societies—
  Manchester and N. of England Orchid .. 111
  Royal Horticultural 111
  Royal Scottish Arboricultural 111
  United Hort. Ben. and Provident .. 111
"The Orchard and the Garden" 106
Timber, Canadian .. 100
Trees and shrubs—
  Juglans cathayensis . 103
Vines, grafting 111
Ward's, Mr. Kingdon, seventh expedition in Asia 107

ILLUSTRATIONS.

Crocus biflorus, 103; C. versicolor 105
Lowe, Mr. Joseph, portrait of 100
Odontonia Baroness Schröder 107
Oxalis enneaphylla 109
Primula calciphila 101
"The Orchard and the Garden": last page of, 106; title page of, 106

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.7°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 21, 10 a.m. Bar. 29.3.; temp., 43°. Weather—Mist, with rain at intervals.

The British Empire Exhibition. The British Empire Exhibition should provide a great opportunity to horticulturists both of these islands and of the whole Empire. In it should be displayed in attractive and comprehensive manner the achievements of horticulturists. Those who are organising the horticultural exhibits have doubtless concerted plans to secure this object and the general horticultural public may expect in due course an announcement of the kind of exhibition which it is intended to make. There should be no great difficulty in formulating schemes, for horticulture is rich in spectacular subjects. The exhibition will extend over a considerable period of time, so that there need be no period when exhibits of popular interest, beauty and scientific value are lacking. To illustrate the best in horticulture and to win for the horticultural industry enhanced credit are objects which are worth achieving. To achieve them, however, something more than occasional flower shows is necessary; what, in our opinion, is wanted is a continuous exhibit of constantly changing items, each of which illustrates some important feature of the art and science of horticulture. We trust that the horticultural section will be so organised that every visitor will make first for it and that all will realise that among the many industries of the Empire, though some are larger, none is prosecuted with greater assiduity and success than that of horticulture. We do not know to what extent the several organisations—the Royal Horticultural Society, the Chamber of Horticulture and others—are engaged in co-operating with the organisers of the exhibition to draft on bold and novel lines a horticultural exhibition worthy of the occasion. From the letter by the Chairman of the Horticultural Committee, published on p. 110, it would appear that the main plan is already determined, and it is to be hoped that when carried out it will prove admirable both in inception and execution. It should be easy to enlist support from horticulturists of all kinds, and it should not be impossible to secure a measure of financial support for the effective carrying out of a scheme that will give a due and brilliant prominence to the horticulture of the Empire.

Rotation, Manure or Fertilisers? The results obtained by Messrs. Muller and Hudelson* from experiments on rotation and manuring extending over a period of thirty years, although carried out with farm crops, are of real interest to gardeners. The object of the experiments was to discover the difference of yield obtained by continuous as opposed to rotational cropping, both on unmanured and manured land. As might be expected, rotation of cropping gave yields superior to those obtained by continuous cropping. The difference of yield was evident in manured, but far more marked in unmanured land. On the latter, also, it was demonstrated that by lengthening the rotation better results were secured than when a given crop succeeded another of the same kind at a shorter interval. Thus, with Maize, continued cropping gave a yield of 20·9 bushels, 32.6 on a three years' rotation, 38.5 on a four years', and 41.5 on a six years' rotation. In general, however, a four years' rotation served to give the maximum yield. The authors make an interesting comparison between continuous cropping on manured and rotational cropping on unmanured land. With a three years' rotation continuous cropping on manured land gives better results than rotational cropping on unmanured land, but with a longer rotation the unmanured land beat the continuously cropped manured land. Needless to say a combination of rotation cropping and manuring gives the best results. The addition of manure has also the advantage in maintaining soil fertility better than does rotation without manure. The relative values of manures and chemical fertilisers vary with the crop; Maize, for example, does better with manure; Wheat and Oats with appropriate fertilisers. Generally speaking, however, a combination of manure and fertiliser gave the best results of all, and moreover, soil fertility is maintained better when manure is used than when chemical fertilisers only are employed. Expert gardeners will find their own experience confirmed by these results, but nevertheless two points are worthy of their close attention. One is that a long rotation of four years is better than a shorter rotation, and the other that artificials, e.g., phosphatic and potash-containing manures, should be used with dung. With respect to the former point, and even in spacious gardens, there is a tendency to use a much shorter rotation than one of four years; yet it seems evident from these experiments that by so doing lower yields are obtained. Therefore, in these days of economy it would be well to remember that a longer rotation will lighten the manure bill without reducing yields. Needless to say, the rotation chosen must be a judicious one and that attention must be paid not only to the type of crop, but also to its position in the sequence. Greediness, depth of root system and power of fixing nitrogen are among the factors which have to be taken into account in determining any rotation, whether in field or in garden.

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* *Missouri Agricultural Experiment Station Bulletin*, 182, Columbia, Missouri.

Claim for Prizes.—An exhibitor at the Maer Horticultural Society's show, held in August last, has successfully sued the committee for the sum of £1 12s., the amount of prize money that had been awarded him and not paid. His exhibits consisted of vegetables, including Spring Onions and Kidney Beans. Some of the Onion plants he had received from another source, but all the other exhibits were, he claimed, cultivated in his own garden. He won seven first prizes, two second prizes and a silver medal, the total value being £1 12s. It was stated by the defence that the committee, in consequence of rumours, appointed a sub-committee to inspect the plaintiff's garden, and the opinion was formed that the produce the plaintiff had shown had not come from his garden. The judge decided it had not been proved to his satisfaction that a fraud had been committed. He believed the produce sent to the show was the plaintiff's own produce, and gave his verdict accordingly.

Allotments in Scotland.—At the annual meeting of the Scottish National Union of Allotment Holders, held recently in Glasgow, emphasis was laid on the need for a greater support of the allotment movement on the part of local authorities. It was stated that there were still very large numbers of allotment holders in Scotland, and that the movement was not going back; it was merely settling down. The Union considered that many local authorities had failed to grasp the value of the allotment movement and had entirely overlooked the fact that one of the best ways of mitigating the hardships of unemployment was to provide men with allotments and seeds and manure for their cultivation. It was stated that the Union would endeavour to educate the local authorities with regard to the movement, and to get them to realise that it was their duty not only to provide allotments to meet a demand, but to create a demand.

Flowers Out of Season.—Mr. R. C. Notcutt, nurseryman, of Woodbridge, near Ipswich, sends sprays of Coronilla glauca from a plant growing in the shelter of a wall, but exposed to the sea, which is within a hundred yards. Mr. Notcutt writes: "The early flowering of the plant is doubtless due to the mild season, but few people realise what a good shrub this Coronilla is, particularly for coast planting, where it makes short joints, and is simply a sheet of yellow from now to the end of June, and often again in the early autumn. I have had a plant growing out of doors for some ten years, and never known it to be harmed by the winter, neither does it seem to be affected by drought. It has not at all an unpleasant scent. I have never before known it to bloom quite so early as this on the Suffolk coast. I find it does not flower so freely inland; it seems to make more soft growth and longer joints, but my plant by the sea is such a mass of yellow, it is difficult to see any foliage when at its best."

—— Mr. John Clark, parks superintendent of Scarborough, has forwarded a box of Roses as evidence of the remarkably mild weather experienced in the Scarborough district. The blooms were picked on February 5 from plants growing in the open, in the Scarborough Public Gardens, within two hundred yards of the sea. Mr. Clark states that the bushes have been flowering all the winter, and there are still hundreds of good blooms to be seen. He writes: "It appears to be the popular opinion that the East Coast is colder and bleaker than other parts, but Roses have frequently been picked here in February. We have had no snow as yet, and only twice has the thermometer been below freezing point, two degrees of frost only being registered on each occasion." He sends the following list of plants in flower:—Berberis Darwinii, Viburnum

Tinus (Laurustinus), Escallonias, Veronicas, Carnations, Antirrhinums, Violas, Marigolds, Candytuft, Arabis, Aubrietia, Wallflowers, Mesembryanthemum, Saxifragas, Valerians, double Nasturtiums, Geum, Rose of Sharon, Centaurea Sea Thrift, Sun Rose, Doronicum, Polyanthus, Forget-Me-Not, Snowdrops, Crocuses, and other early-flowering bulbous plants.

Plant Pathology at the Imperial College of Science.—The new Botany (Plant Pathology) Building of the Imperial College of Science and Technology was opened on the 16th inst. by the Duke of Bedford. The building has been designed by Sir Aston Webb, P.R.A., and is intended to accommodate the technological developments of botany. An old student of the college, Mr. Pinching, recently from Malay, has been placed in charge of the new building, under Prof. J. Bretland Farmer, head of the Department. The investigations will include diseases and pests attacking economic plants in different parts of the empire. On the opening day a large series of cultures of fungi and bacteria were on view. The exhibits also included apparatus capable of registering the 250th part of an inch of growth in a plant.

"Geo. Monro, Ltd." Concert.—The Committee of the "Geo. Monro," Ltd., Concert is to be congratulated on the success of the twenty-fourth annual Bohemian Concert held at Queen's Hall, Langham Place, on Thursday, the 15th inst. The large building was filled with an appreciative audience, and the concert was one of the best of the series. The platform was beautifully decorated with foliage. and flowering plants by Messrs. Wills and Segar, while the tables were pleasingly decorated with flowers, kindly presented by Messrs. Lowe and Shawyer, Ltd. It may be expected that there will be, as usual, a sum available from the profits in aid of charitable institutions.

"Irish Moss" Industry at Brest.—The preparation and exportation of Chondrus crispus, one of the marine Algae, is carried on to a considerable extent at Brest. According to the *Journal of the Royal Society of Arts*, the plant is gathered by the Brittany peasants along the rocky coast during the summer neap tides. The moss is spread out to dry, being washed by frequent rains. It is then sold to dealers, who pack it in tightly compressed bales after a second cleansing and sorting according to quality. Previous to the war the moss was largely exported to Germany. In 1921 the establishment at Brest, probably the most extensive in France, with a capacity of 300 tons annually, exported to the United States a total of 220 bales, weighing 55,376 pounds.

London Daffodil Show.—The Royal Horticultural Society's Daffodil show will be held at the Royal Horticultural Hall on Thursday and Friday, April 12 and 13. The schedule of classes and prizes provided for this exhibition may be obtained from the Secretary at the Society's offices. Seventy classes have been arranged, and in the more important ones silver-gilt, silver and bronze medals are offered in addition to cash prizes. The Engleheart Challenge Cup will be awarded as first prize in the class for twelve varieties of Daffodils not yet in commerce, one stem of each, while the Barr Silver Daffodil Vase is the first prize in a class for a collection of thirty-six varieties fairly representing most sections into which Daffodils are now classified. Two new classes have been arranged for commercial growers; one is for six varieties, twelve stems of each. as packed for market, to be judged from the market standpoint; while the other is for a market box of Daffodils as packed for market. At this exhibition the Council of the Society will be responsible for the provision of the Engleheart Cup and the medals offered, but the cash prizes are subscribed for by Daffodil lovers, and Messrs. P. R. Barr, E. A. Bowles. and C. H. Curtis are responsible for their charge and payment. Mr. Herbert Smith is hon. secretary of the Daffodil Show Committee, which consists of Messrs. P. R. Barr. E. A. Bowles, C. H. Curtis, G. W. Leak, J. D. Pearson. and the Rev. J Jacob.

Mr. Joseph Lowe, V.M.H.—The award of the Victoria Medal of Honour in Horticulture to Mr. Joseph Lowe is well deserved, and in making it the Royal Horticultural Society has honoured itself and the flower industry, of which Mr. J. Lowe is one of the captains. Truth is often stranger than fiction, and a full record of Mr. Lowe's life, showing his difficulties and successes, would read like an Eastern romance. At nine years of age he commenced to earn his own living, and worked in a private garden for the small salary of 2s. per week. Now his firm pays more than £1,000 a week in wages. With the exception of one year spent in Mr. Chas. Turner's nurseries, at Slough, Mr. Lowe worked in private gardens until, at the age of twenty-one, he felt it necessary to embark on a new line of business, so that he might be the better able to help his parents. In 1864 he rented a small piece of open ground and commenced business as a jobbing gardener, as the absence of funds would not allow him to launch out on a larger enterprise. His first glass structure was a frame, six feet by four feet, in which he raised a few seedling plants for sale, but right from the beginning he took a very keen interest in Roses and commenced to grow them for sale as plants. So well did these succeed that someone suggested to him the flowers would find a ready sale in Covent Garden market, and he sent a few dozen blooms two or three times a week, so long as the season lasted. Although he has grown many kinds of plants and flowers, it is probably as a grower of Roses for market that Mr. J. Lowe is best known. During his early years as a business man he grew Violets in pots, and in the early spring time these realised 8s. per dozen. A little later he specialised in early Strawberries, marketing them in pots as grown, and these realised so much as 10s. per pot. But eventually almost everything had to make way for Roses, both under glass and out of doors, and with increasing experience he commenced to flower Roses a little out of their ordinary season by building rough pits and providing other means of protecting the plants against inclement weather. Wooden shutters with a covering of six feet by four feet lights were used in large quantities, and even to-day the use of movable sides with a covering of lights is a feature of the nursery work at Uxbridge. where no fewer than two thousand of such lights are in constant use. Low houses with movable lights followed, and were eventually superseded by a more modern type of glasshouse, though there still remains at Uxbridge one range built forty years ago for the cultivation of Maréchal Niel Roses. Another Rose for which Mr. Lowe became famous was Lowe's Baroness, a very popular sort on account of its fragrance, but the variety was actually Mme. Gabrielle Luizet. Tomatos and Cucumbers have also claimed Mr. Lowe's attention, and he grew the first batch of Lockie's Perfection Cucumber for seed. He was also the pioneer of the cultivation of the Chrysanthemum for market purposes, and grew the old variety Elaine so well that he obtained from 8s. to 9s. per dozen disbudded blooms. Many other varieties of Chrysanthemums, such as Princess Teck, Mme. Desgrange, the Rundle group, Avalanche and others were planted in the ground in such a way that movable houses could be built over them just before they came into flower, the Chrysanthemums being followed early in the spring by permanent crops of Roses. Thought tall and stately, Mr. Lowe has never been physically robust, but by working almost day and night, and exercising his genius as a plantsman, he built up a wonderful business, which is probably the largest of its kind in the country, as the nurseries now cover over 130 acres of ground. As the years increased he suffered from failing health and at one time thought of selling his business, but about twenty-five years ago he induced Mr. George Shawyer to join him in partnership, and to relieve him of the more arduous duties of the management. This combination of forces proved eminently successful, and fortunately it continues. Comparatively few subjects are grown by Messrs. Lowe and Shawyer, and although Mr. Lowe still takes considerable interest in Chrysanthemums, Carnations, Sweet Peas, Tulips, Narcissi, Gladioli, and Irises, his great love for and interest in Roses still remains. Although the duties of management now rest largely on other shoulders than his own—as Mr. T. Stevenson now shares these responsibilities with Mr. Shawyer—Mr. Lowe continues to take a fatherly interest in the welfare of his employees and in all charitable works connected with the town, while nothing pleases him better than to go among his people at the village fair to talk of old times and show an interest in all their doings.

MR. JOSEPH LOWE, V.M.H.

Horticultural Club.—A Club dinner of the Horticultural Club has been arranged for Tuesday, February 27, at 6.30 p.m., at the Hotel Belgravia, Grosvenor Gardens, Victoria. After dinner, Mr. W. B. Cranfield, President of the Pteridological Society, will give a lecture entitled "British Ferns and their Varieties as Subjects for Garden Decoration," which will be illustrated by lantern slides. A musical programme will follow the lecture.

Yields of Whole Potato Sets and Cut Sets.—Experiments conducted at the New York Experiment Station showed the greater superiority in cropping of whole Potato tubers used as seed compared with pieces of the same average weight cut from large tubers. The first experiment, conducted so long ago as 1906, showed that the whole tubers gave a crop of 21.4 bushels of marketable tubers and 8.6 bushels of small tubers per acre in excess of the crop from cut sets, and in the second experiment, conducted in 1920, the advantage was again with the uncut tubers. The growth of the latter was better and earlier, fewer plants were attacked by leaf-roll and the yield was larger.

Freightage of Australian Apples.—A conference recently convened by the National Federation of Fruit and Potato Trades' Association, and attended by the principal dealers in Australian Apples, also representatives of the Governments of New Zealand, Tasmania and the fruit-growing States of Australia, was for the special purpose of considering the freightage charged on Apples for refrigerated tonnage. It is stated that the prospects of the ensuing Australian Apple season were not very satisfactory, whilst the difficulties of ensuring and financing shipments had materially increased. A resolution was passed appealing to the Refrigerated Tonnage Committee to reduce the freight on Apples to 4s. per case, as the industry could not bear a higher charge than this amount. The conference has requested the Refrigerated Tonnage Committee to receive a deputation.

Imperial Fruit Show, 1923.—The dates of this show, which will be held this year at Manchester, have been fixed for October 26 to November 3. A Committee representative of he various sections of the fruit-growing and distributing industry, has been elected under he Chairmanship of Mr. George Swift. Mr. Swift is a grower of fruit in Worcestershire, and he has a distributing business at Manchester. Before the Imperial Show was instituted, there were three important fruit shows, held every year at Maidstone, Cambridge, and Worcester respectively. The industry has decided that whereas it may not be of advantage in future years to allow these large district shows to disappear, it will be well to maintain the estabished principal show, which has now become an Imperial institution.

The Application of Artificial Manures.—Starting from the premises that low crop yield is often due less to insufficiency of chemical fertilisers han to their imperfect utilisation by the crop. Mr. A. Baudry* carried out experiments during a number of years on the effect of sowing ertilisers in shallow drills in close proximity with the seed, and at the time of seed sowing. He observes that by adopting this method the amount of fertiliser used need not exceed two-and-a-half to three cwts. to the acre, and that he plant is benefited from its youngest stages onward. The manure is applied in drills about an inch deep, and drawn close to the seed drill.

Imperial Timber Resources.—H.R.H. The Prince of Wales is taking a keen interest in the movement for developing the timber resources of the Empire. He has accepted the Presidency of the Empire Forestry Association, and will preside at the Association's annual meeting at he Guildhall at 3 p.m., on March 2. At this meeting the new Council of the Empire Forestry Association will be elected, consisting of 45 members—9 for the United Kingdom, 10 for he Dominions, 2 for India, 6 for the Crown Colonies and Dependencies, and 18 for affiliated societies—nine representing Overseas Associaions. The Empire Forestry Association is promoting a permanent exhibition of Empire Commercial timbers in London, and will play an important part with regard to the timber section at he British Empire Exhibition in 1924.

Appointments for the Ensuing Week.—Tuesday, February 27: Royal Horticultural Society's Committees meet; Horticultural Club Dinner, at he Hotel Belgravia. Wednesday, February 28. Mitcham, Tooting and District Horticultural Society's meeting. Thursday, March 1: Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—It may be useful now to warn your readers that spring brings us impostors as well as flowers. Last year a bustling, rather athletic female called on me with "choice Ranunculus roots" for sale, very cheap and quite fresh, for the lady had just received them from her husband—a small nurseryman in Yorkshire. These tales catch many of the unwary. The fact is that the roots offered were those of the common Pilewort (Ficaria ranunculoides), which she had just collected from the hedge-banks; and, from her appearance, had done in them a flourishing trade. "Fresh Anemone roots" also were offered to some parties, but not having seen these, I cannot say what the lady collected for the gratification of Anemone fanciers. Plants of the Orchis mascula, when their attractive spotted leaves are an inch or two long, are sometimes collected in Gloucestershire and hawked about the country with the accompaniment of an outlandish sort of name to make them valuable. These, however, unlike the Pilewort, are plants worth having, if they were sold without being coupled with dishonest intentions. Yellow Rose trees, collected from the same nursery-grounds as the Ranunculus roots, were articles of commerce about three years ago by some of the partners of the company of flying florists. These recollections may suffice to guard your readers against similar impositions.—*B. Maund, Bromsgrove. Gardeners' Chronicle, Feb.* 19. 1848.

PLANTS NEW OR NOTEWORTHY.

PRIMULA CALCIPHILA.

This charming Primula which was shown and received an Award of Merit at the Royal Horticultural Society's meeting on February 13, 1923 (Fig. 49), has for many years been regarded as the wild type of Primula sinensis, but increased knowledge of the plant under cultivation has led to the conclusion that it has nothing to do with the garden race of Chinese Primulas. At Kew, for the past ten years, all attempts to hybridise it with many varieties of the garden race have proved unsuccessful. The same negative result has been experienced at the John Innes Horticultural Institute, and, I believe, by Messrs. Sutton and Sons, Reading, and all this has led to renaming the plant.

The Kew plants are from seeds originally collected by Mr. E. H. Wilson, on the limestone cliffs of Ichang, Western China, where it was first discovered by a Mr. Walters in 1878, and also by the French missionary, Abbé Delavay, and Dr. A. Henry. The first plants to flower in this country, in 1892, were those of Mr. Edmund Hyde, Ealing, and the *Bot. Mag.* tab. 7559 was prepared from one of his plants in 1896. This early stock was lost to cultivation, and the species was reintroduced some years later by Mr. E. H. Wilson.

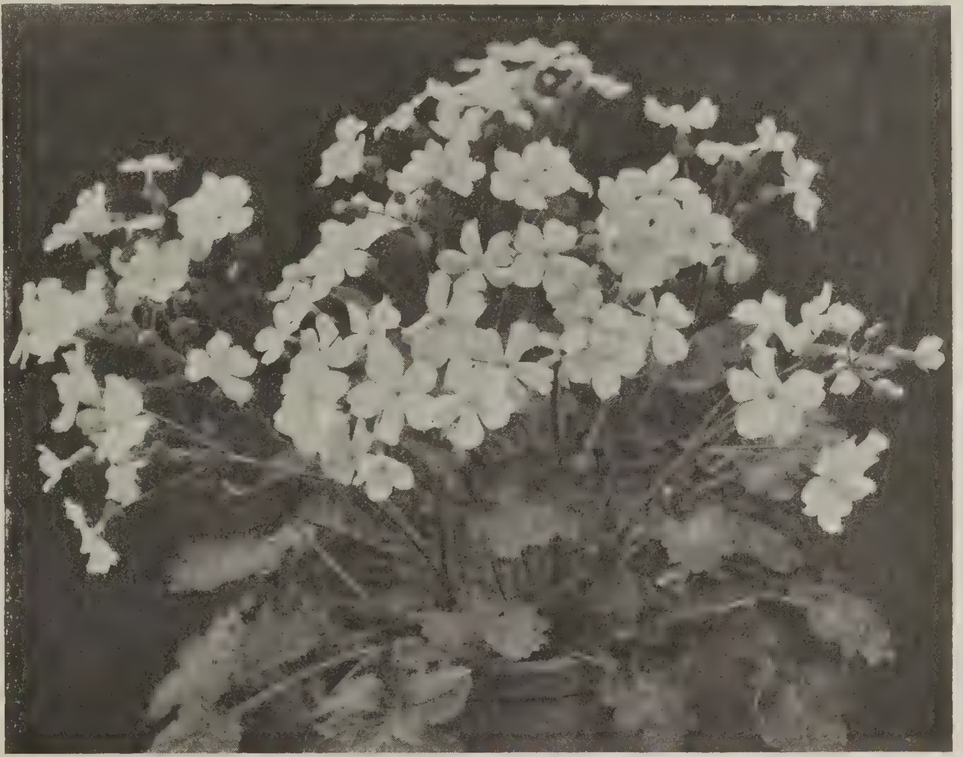

FIG. 49.—PRIMULA CALCIPHILA; AWARD OF MERIT R.H.S., FEBRUARY 13; FLOWERS PALE MAUVE OR LILAC, WITH LEMON YELLOW EYE.

The plants set seed quite freely if artificially pollinated, and by this means the Kew stock of plants has been maintained and grown in increasing numbers each year.

At Kew, Primula calciphila is given exactly the same treatment as the Chinese Primulas; but it is by no means so easy to cultivate successfully. It grows quite well in a compost which suits the Chinese Primulas, but as lime in the soil is essential to success, old mortar may largely take the place of sand in the potting compost. Careful watering is always essential, and on no account should water be poured into the dense rosette of leaves, or wholesale damping off will result. The plants may be kept for several years, when they develop woody stems and root stock; as they age these are increasingly difficult to keep in good health, the flowers getting smaller and eventually scarcely rising above the foliage, thus closely resembling the plant in its native state.

In a large batch of plants the flowers vary somewhat in size and colour, the latter varying from a soft lilac to deeper rosy lilac. The plants also vary in habit, some throwing their flowers well up above the foliage, while in others the flowers do little more than appear above the leaves. Except in those respects the plant has so far shown no signs of variation. The flowers are delicately scented, and the plant is altogether a very dainty one for greenhouse decoration. *J. Coutts.*

ORCHID NOTES AND GLEANINGS.

LAELIO-CATTLEYA AETHIOPIAN.

A flower of this new cross between L.-C. bletchleyensis (C. Warscewiczii and L. tenebrosa) and L.-C. Aphrodite (C. Mendelii × L. purpurata) from Messrs. Sanders, St. Albans, shows good advance in rich colour. It is a secondary cross with four of the finest species as parents, and when fully matured it should surpass the parents in size, as it does already in colour. The sepals and petals are bright mauve, the lip claret crimson with some gold lines from the base to the centre, which has a ruby shade merging into the claret crimson of the front, the margin being of a lighter shade.

BULBOPHYLLUM SILLEMIANUM.

It was interesting to see this very pretty and distinct species shown at the Royal Horticultural Hall on February 13 by Messrs. Stuart Low and Co., Jarvisbrook, Sussex. It is a native of Burma, and was first described in *Gard. Chron.* by Reichenbach, 1884, Vol. 2, p. 166. It was shown by the late Sir Trevor Lawrence at the Royal Horticultural Society's meeting on April 12, 1892, when a Botanical Certificate was awarded.

Bulbophyllum Sillemianum belongs to the Sarcopodium section, bearing ovoid pseudo-bulbs and single, lanceolate leaves, the habit being similar to that of B. Lobbii. The slender scape, about two inches long, bears one flower about one inch across, coloured light yellow, with dark-coloured, mobile lip. It should be noted that the flowers close at night.

The species was imported and flowered by Mr. J. Sillem, of Sydenham, an enthusiastic orchidist of his time.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Vanda, Aerides and Saccolabium.—Any plants of these genera may receive attention when showing signs of renewed root action. It is not desirable to repot them unless a shift is absolutely necessary, but even in the case of well-rooted, healthy specimens, it is desirable to renew the compost on the surface after the long season of rest. Where top dressings of this kind are necessary, care must be taken that the drainage is satisfactory. I am not much in favour of top dressings, simply for the reason that it makes the watering of plants so much more difficult, and only practise it in exceptional cases. Plants that have become leggy may be treated in precisely the same manner as advised for Angraecum sesquipedale on p. 88, and the lowest leaves, if possible, brought down to the level of the compost. This shortening must be governed by the condition of the roots, for it is not desirable to remove them all. The growths should be securely fastened to stout stakes to keep them in an upright position and prevent swaying. Use scrupulously clean pots and pans, which should be well drained; place the plants in position, the roots carefully inside the pots, and fill the space with a compost similar to that used for Angraecums. Vanda tricolor, V. suavis and V. coerulea all thrive in a warm intermediate house, whilst V. Sanderiana requires a warm position in the warm house, where Aërides odoratum, A. Lobbii, A. virens, A. Fieldingii, A. Lawrenceae and A. Sanderianum will grow satisfactorily. A. Lindleyanum, A. crispum, A. crassifolium and A. Warneri all grow best in an intermediate temperature. Saccolabiums require the temperature of the warmest house the whole year round.

Masdevallia.—As the days lengthen, Masdevallias that have produced their flowers during the winter will commence to grow, and that stage is suitable to undertake any necessary repotting. The beautiful white M. tovarensis will have passed its flowering period, and may be attended to in this respect. I prefer growing all the smaller Masdevallias in shallow pans in order that they may be suspended, and thus receive all the light available. A suitable compost for these plants consists of equal parts of peat, Polypodium fibre, Osmunda fibre, and clean Sphagnum moss, with a fair sprinkling of half-decayed leaves, after they have been rubbed through a half-inch sieve. The compost should not be placed too tightly around the plants, but pressed just sufficiently firmly to hold the plants in position.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison,
King's Walden Bury, Hitchin, Hertfordshire.

Animal Pests.—Rabbits and hares often do considerable damage in the garden, especially in young plantations, by barking the trees sometimes so seriously that the latter are killed. The practice of smearing certain kinds of grease directly on the stems is not to be recommended; I have seen a number of trees ruined in this way. It is more satisfactory to wire the whole enclosure; the base of the netting should be buried 6 inches deep in the ground and turned outwards, replacing the soil in the trench and ramming it well. We have recently encircled 4 acres in this way. The only alternative is to place wire around the stems of the trees that are likely to be attacked. Where bush fruits are concerned, the former is the only effective method.

Winter Spraying.—Any arrears of this work should now be completed. A combined wash late in the season will sometimes destroy numbers of pests, including Pear leaf blister mite, leaf-curling aphis, Currant scale, the small ermine moth, as well as fungus spores. The caustic copper sulphate, paraffin emulsion is a very searching mixture for dealing with insect and fungous pests. I have not, as is often recommended, found this the best time to deal with mussel scale. The outer coat of this pest is very hard and seems impervious to washes, but, if dealt with in May and June, as the old scales lift and the new generation begins to migrate, a simple paraffin emulsion or emulsified soft soap alone may destroy them. Varying proportions for this specific are recommended. I have found one per cent. of paraffin efficacious, and that amount does no harm to the trees, excepting in the case of Cox's Orange Pippin Apples. Half-strength lime sulphur is advisable for this variety, the foliage being very susceptible to burning. For dormant trees, the amount of paraffin may be increased to 5 per cent. In both cases the percentage may be increased slightly without harm, but that recommended is the average or border line of safety. This insecticide, if applied just before growth commences, is most useful in destroying the Pear leaf blister mites, which congregate mostly round the buds and points of the shoots; a dressing of kainit to the roots will also considerably reduce this pest on the older trees. Paraffin emulsion may also be used with good results. When the gall mite (big bud) of the Black Currant is migrating, which takes place between April and June, the late Mr. George Massee recommended to me a certain composition which I believe had a basis of tar. He contended this material would, when applied to the lower part of the bush, prevent migration of the mites. I have not seen it tried, and the views of readers would be welcomed. From now onward it will be necessary to carefully watch for waking insect life, and a pocket lens is a great help in detecting insects missed by previous spraying. A very handy and compact garden lens is sold by Messrs. White and Sons, Paddock Wood, Kent.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Calathea and Maranta.—There are many species of these beautiful foliaged plants, remarkable for the varied and handsome colouring of the leaves. They are often seen in an indifferent condition, due to their requirements not being generally understood. They require ample drainage, a rich and free root run, and a sweet compost at all times. When well established they need liberal supplies of water at the roots, a moist atmosphere, and partial shade. The compost should consist of about equal parts of good loam, peat and leaf mould, mixed with plenty of sand and fairly large pieces of charcoal. The loam and peat should be in a rough, lumpy condition, to ensure a free and open root run. Although these plants succeed in well-drained pots, pans are the best receptacles for their successful cultivation. The present is a suitable season to repot them, so that they may have plenty of time to become well established. The plants are best turned out and all the old soil washed clean from the roots, thus getting rid of all the old sour material, and rendering division more easy. All decaying roots should be trimmed off before repotting the plants. After that operation they should be kept close and warm in a temperature of 60° to 65°, and the roots afforded water with great care until plenty of new roots have formed. Although they may be successfully cultivated in pots and pans, it will be a revelation to many to know that they may be planted on a well drained rockery in a warm house. If the atmospheric conditions are too dry the plants are liable to be attacked by red spider, which, if allowed to spread, soon disfigures the foliage. A few of the best species of Calathea are C. illustris, C. Lindenii, C. Makoyana, C. Massangeana, C. Veitchiana, and C. zebrina, while of Marantas, M. bicolor, M. chimboracensis, M. concinna and M. sanguinea are a selection of the best garden species.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esc
Carlton Park, Market Harborough, Leicestershire.

Spinach.—A small sowing of Spinach ma
be made on a south border. It is somewh
risky to sow this vegetable too early, but
warm districts, should the weather rema
open, it will prove welcome as a change, if
comes to maturity. Rake the ground finel
and draw shallow drills about a foot apa
Sow the seed evenly, and cover it by rak
the ground over again. As soon as the plan
are large enough, thin them to a foot apa
and draw a little soil up to the rows. Gi
the soil a dusting of old soot during showe
weather, and hoe between the rows on freque
occasions to encourage a quick growth. Sm
sowings made at intervals of three weeks
a month are preferable to one big sowi
Later batches of Spinach may be grown
tween rows of Peas or Beans; the part
shade from these crops will be beneficial
the Spinach, especially if the weather pro
hot and dry. Long-standing Round and T
Carter are two excellent varieties for sowi
from now onwards.

Brussels Sprouts.—To produce fine spro
from September to March, the s
should be sown at a sufficiently early d
to enable the plants to complete th
growth by early autumn. They sho
also be allowed plenty of room to permit
sun, light, and air reaching them free
Plant them 5 feet apart, and grow seco
early Potatos between the rows. When t
latter are dug, draw fine soil up to t
stems of the Brussels Sprouts to support th
through the winter The best place to sow t
seed is in a frame on a half-spent hot-bed,
wide, shallow drills, taking care not to s
too thickly. Cover the seeds with half an in
of fine soil, and water them with a r
can. Close the frame and shade it until t
seeds have germinated, then admit air acco
ing to the weather. When the plants a
large enough to handle, prick them out
cold frames or in a bed in the garden, abo
4 inches apart, and the same distance betwe
the rows. If grown out of doors, place
9-inch board edgeways round the bed, and pla
sticks across at intervals, on which some
fish netting may be stretched. Keep the s
stirred between the plants for the purpose
promoting healthy growth.

Seed Potatos.—Potatos required for planti
during March and April should be set up
end in light, frost-proof sheds, etc., to spro
As this is done, examine them carefully
faulty tubers. It is surprising what a diff
ence sprouting the sets makes to the cr
and the rows are much more uniform wh
only well-sprouted tubers are planted. R
off all shoots except two or three at the
of the tuber, and take care these are n
broken in handling them.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Es
Woolverstone Park Gardens, Ipswich.

Early Vines.—The new growth on vin
started early in December is now well a
vanced, and constant attention is required
stopping and tying the young shoots. Pinc
the shoots at the first or second leaf beyo
the second bunch, according to the spa
available for full leaf development. T
young growths should be kept well clear
the glass, as the temperature at this time
the year immediately under the roof glass
much lower during cold nights than the re
of the house. The drawing of the shoots
the wires should be done gradually, as the
break off easily. The border should
examined, and if found to be dry, watere
with tepid water, which should suffice until th
flowering period is over. Syringe the folia
on bright days when closing the house; thi
operation should be done thoroughly to kee
down attacks of red spider. Air should be ad
mitted whenever the weather conditions ar
favourable, but cold draughts must not rea
the vines. A night temperature of about 60

slightly more or less according to the weather, with a moderately moist atmosphere, should be maintained, allowing a rise of 10° by day without sun-heat. In the successional house, as soon as growth is sufficiently advanced, disbudding should be attended to, and the night temperature increased to 50°.

Figs.—If a house containing permanently planted Fig trees is started forthwith, there will be ample time for the trees to produce and ripen a second crop of fruit without endangering the prospects of a crop in the succeeding year. Provided the soil is moderately moist, water need not be applied to the borders until the roots are in need of moisture, when it should be supplied liberally and in a tepid condition. A night temperature of about 50°. with a corresponding rise by day, will suffice in the early stages of forcing. When the weather is bright, close the house early in the afternoon, syringing the trees at the same time; during cold, sunless weather, restrict atmospheric moisture to a minimum. Trees intended to produce a late crop should be kept as cool as possible for the next few weeks.

Late Vinery.—If not already done, the necessary work preparatory to starting the late vinery should be completed without delay, and the house kept close without fire-heat until the buds commence to burst, when a little artificial warmth will be beneficial. In the colder parts of the country it is advisable to start the latest vines by the end of February, and a week or ten days later in more favoured districts. In turning over an old note-book I found an entry that the latest house was started about February 21; this was in a very cold district—the north-east part of Yorkshire. Grapes from this house maintained the supply until the bunches from the earliest forced vines were ready to cut.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Lawns.—Any bare places in lawns needing returfing or uneven parts which need levelling should be dealt with as speedily as convenient, so that the newly laid sods may unite with the existing sward before hot weather sets in. Broken verges should be repaired, as these detract much from the best appearance of a lawn or border. The ground where lawns are to be re-sown, or new lawns made by sowing seed, should be well dug and levelled preparatory to sowing from the middle to the end of March.

Half-hardy Annuals.—These are best raised in gentle warmth, and about the first part of March is a good time to sow the seed for the earliest batches A second sowing may, if desired, be made in the open, where the plants will bloom, from the middle of May onwards, according to the season, by which time the earliest plants will be ready for transplanting out of doors. The seed may be sown in pans, boxes, or slightly heated frames. Make the surface soil on which to sow the seed quite firm in all cases. Shading is advisable until germination has taken place, after which, so soon as they are strong enough, prick out the seedlings into other receptacles and gradually harden until it is safe to plant them in the open. Asters, Cosmos, Dimorphotheca, Nemesia and Zinnia respond well to this treatment, whilst the Verbena, although a hardier type of plant, is best treated in this way. A temperature of 50° to 55° is suitable for the raising of these plants, allowing it to rise 10° or so on sunny days.

The Rockery.—Plants on the rockery are very forward, and attention should be paid to the clearance of small weeds and leaves that may have drifted in from other places. The surface soil should be lightly forked over and a top dressing of suitable soil applied to all plants requiring it. Slugs are very troublesome in spring when growth is tender, and need to be guarded against.

THE BULB GARDEN.

CROCUS BIFLORUS.

The "Scotch Crocus," or Cloth of Silver, as it is sometimes called, is one of the most variable species in the genus. It contains many varieties, some of which might well be kept up as distinct species owing to their different habit and appearance. C. biflorus in its many forms has a wider range than any other member of this genus, extending from Northern Italy to North-West Persia. The Western forms of the species are paler in colour than those of the East, in which more colour is present on the outer segments of the flower. It is usually a lowland plant, but in the Caucasus it is found as high as from 4,000 feet to 6,000 feet elevation.

The best known form, which has been in cultivation for a long time (Fig. 50) has silvery white flowers with a golden throat, the three outer segments being buff-coloured on the outside, with three main feathered lines of dark purple. The more distinct varieties include var. Adamii from the Caucasus, with the outer segments pale self purple, or feathered dark purple; and var. Alexandri, a beautiful form from Serbia and Bulgaria, with large flowers flushed or lined with bright lilac. It was introduced into cultivation by Max Leichtlin in the year 1899. From the Dalmatian coastal region we get the beautiful variety Weldenii, with its outer segments shaded or speckled with mauve or blue in some forms, while others are almost all pure white. The variety estriatus is buff-coloured on the outside, without any stripes. A dainty little plant is the variety Pestallozae, from the shores of the Bosphorus, with small white flowers and a golden throat. All are of easy cultivation on a sunny border, coming into flower about the end of January.

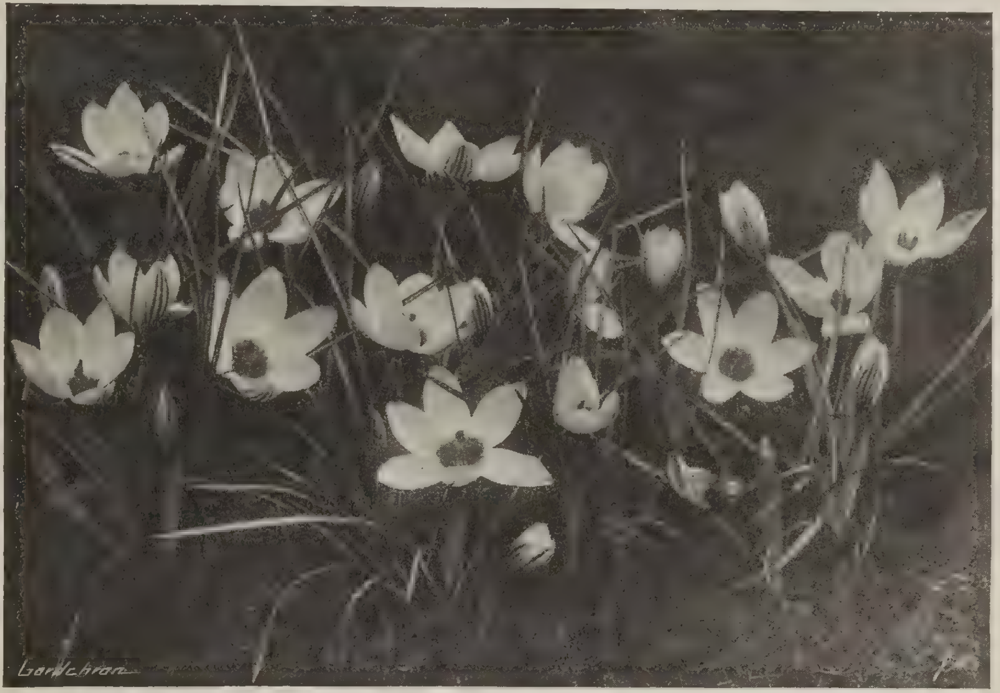

FIG. 50.—CROCUS BIFLORUS; FLOWERS SILVERY WHITE, OUTER SEGMENTS SUFFUSED WITH BUFF.

CROCUS VERSICOLOR.

This robust growing species (Fig. 51, p. 105) comes from the Maritime Alps, being found in the grassy pastures up to a height of 4,000 feet. The flowers of the various forms present a great variety of beautiful colouring, ranging from white, through lilac to deep purple feathering and veining on the outer segments. It comes into bloom in February, each corm producing a number of flowers of large size. These are of greater substance than many other Crocuses, which enables it to withstand better the unfavourable weather usually met with at this time of year.

The commoner form of this species has white or lilac flowers, striped with rich purple. The variety picturatus is white, with prettily feathered crimson-violet outer segments.

If one were limited to a few kinds, C. versicolor in its various forms should be one of the Crocuses chosen. A colony in a sheltered, sunny spot in the rock garden makes a delightful picture when the flowers are fully expanded in sunshine during the winter months. *W. I.*

GALANTHUS PLICATUS FRASERI.

Galanthus plicatus Fraseri is one of the finest Snowdrops of the plicatus type. It was discovered among a number of plants growing in the garden of the late Mr. P. Neill-Fraser, of Rockville, Murrayfield, Edinburgh, and the late Mr. W. B. Boyd, of Faldonside, Melrose, who detected it at Rockville, was much surprised by its superiority to the other Crimean Snowdrops there. G. p. Fraseri has the plicate leaves of the typical Crimean Snowdrop, but is taller and has finer flowers; it has also a more drooping habit than most of the plicatus varieties. G. plicatus and its varieties are quite hardy and succeed well in ordinary soil. *A.*

TREES AND SHRUBS.

JUGLANS CATHAYENSIS.

This Chinese Walnut, or Butternut, is proving to be a fast growing and ornamental tree. A native of Central and Western China, it is a common tree in Western Hupeh and Western Szechuan, ranging from a shrubby bush or small tree in the low-lands up to about 70 feet on the hill sides. A loose-limbed tree, it has imposing pinnate yard-long leaves composed of thirteen to seventeen leaflets. The pendulous male catkins are 9 inches to 15 inches long, and the fruits are borne towards the end of a stalk 6 inches to 9 inches long. As the trees commence to produce fruits before they attain a dozen feet in height, it should not be long before trees of the Chinese Walnut are readily obtainable from nurseries. A fruiting spray is figured in *The Gardeners' Chronicle* of September 9, 1911, Fig. 88, the material from which the illustration was prepared having been produced by a tree in Messrs. J. Veitch and Son's nursery at Coombe Wood, Kingston Hill.

Juglans cathayensis appears to have been first introduced to Europe by Père Farges, who sent fruits to M. Vilmorin in 1899. The best trees in this country were raised from seeds collected by Mr. E. H. Wilson in 1903. The nut is of little edible value. *A. O.*

GARDEN NOTES FROM S.W. SCOTLAND.

THE earliest of the coming crowd of Narcissus to bloom this year is N. cyclamineus, which opened on February 8, followed by N. Pseudo-narcissus on the 10th. Last year their repective dates were February 25 and March 3. The unusual mildness of the present winter has served to illustrate the singular difference in the effect of temperature upon three genera of the Amaryllis family—Narcissus, Leucojum and Galanthus. The first two respond readily to warmth; the Snow Flake—L. carpaticum Vagneri, opening its first blossom this year on January 2, the earliest date recorded in the last twelve years; whereas the common Snowdrop, which first hung a head on December 22 in the winter of 1921-2, did not begin this year till January 5. In the opinion of some good botanists, light has more to do with promoting growth than temperature. Even if that be so, it does not explain the different behaviour of one out of three genera in the same Natural Order.

We have excellent opportunity here for noting the phenology of the common Snowdrop, our woods being very widely carpeted with this flower, and I have never been able to trace the slightest connection between the prevailing temperature and the start in bloom. Those who have tried to force Snowdrops into flower by growing the bulbs under glass must have been disappointed in the result. The plants in the house cannot be induced to flower a single day before their kindred in the open; unless, indeed, the ground outside is hard bound with frost, so as to stop all growth.

That is not the only peculiarity of this delightful plant. None is more easily naturalised in certain places; none more obstinate in refusing to take possession in other places. For instance, at Ardgowan, on the Clyde, it is no exaggeration to say that acres of woodland are sheeted with it; whereas at another large place twenty miles distant, also on the Clyde, frequently repeated attempts to establish it have met with most meagre results, although soil and climate in the two places are similar. Several years ago, when discussing with the late Mr. Dorrien Smith his remarkable success in supplying Narcissus and other flowers to the market in winter, I asked him whether he sent many Snowdrops from Scilly. He replied that it was no use planting Snowdrops in his island; he had tried them, and they would not grow. Yet he was hard to excel as a cultivator. Where Snowdrops are not a success, Snowflakes (Leucojum) form an effective substitute, flowering at the same season and being just as easy to naturalise. It is difficult to understand why more use is not made of this beautiful and fragrant flower. It is a rare thing to see it grown except as a clump in a border; but it is a famous plant for woodland, and, like other Amaryllids, is immune against attack by rabbits; being protected, I presume, by the presence in its leaves and flower-stalks of crystals of calcium oxalate, known as raphides, which render them indigestible. Would that all the Irideae and Liliaceae had similar defence.

It may be noted that it is not well to plant Snowdrops and Snowflakes together; the form of the flowers is so nearly similar as to cause a jar, and justice can only be done to their beauty by keeping them well apart.

Great things were expected of Adonis amurensis when it was first introduced early in the century. True, it usually begins to flower in January (this year not till February 5); but it has proved a poor thing in the dozen years we have had it here. Its dingy blossoms are no match for the "goblin gold" of A. vernalis.

Mr. Dykes has commented in *The Gardeners' Chronicle* of February 10 on the effect of a cold, sunless summer in retarding the bloom of Iris unguicularis. At that date our plants had not borne a single flower—a striking constrast with last winter when it flowered continuously for months. The Winter Heliotrope—Petasites fragrans—also seems to have taken umbrage at the past season for there are few sweetly-scented blossoms among its abundant leafage. This, of course, is no plant for garden borders, but for waste places in the wild, and so is its relative P. albus, which cheers up odd corners towards the end of January with vigorous racemes of white flower appearing before the leaves. But let the amateur beware of introducing P. japonicus, a perfect terror to humbler growths, overshadowing every neighbour with its huge leaves, spreading underground at an appalling rate and making no atonement in the shape of attractive blossom.

Only once before has Ribes sanguineum been noted as flowering here in January. It began on the 23rd of that month, and the bushes, freely self-sown in the woods, are now—February 10—gay with crimson and cream-coloured tassels. Last year the first flowers opened on March 3. *Herbert Maxwell, Monreith.*

EDINBURGH BOTANIC GARDENS.

THE effect of the mild winter, with more than an average amount of bright sunshine during January, is seen in the numerous plants flowering in the outdoor garden. In the arboretum the sunshine, glinting on the moistened boughs of the Elms, suffuses them with rosy colour, a shimmering mirage due to the innumerable twigs, which at the extremities are tinged with red. The iridescent shoots of Jasminum nudiflorum are spangled with yellow flowers, an opulent riot of colour not equalled at this season by any other shrub. Large bushes of Arbutus Andrachne and A. Unedo magnifica, growing in several parts of the garden, are flowering freely. Other shrubs in flower include Hamamelis arborea, with leafless branches smothered with bunches of twisted golden petals and crimson calyces.

Other plants observed in bloom were Lonicera Standishii, a fragrant winter-flowering Honeysuckle; Garrya elliptica, bearing many tufts of pale green catkins; a hedge of Rhododendron praecox, 50 yards in length, and several plants of Azalea acuminata. Shrubs that are about to flower in the rock garden include Rhododendron parvifolium, R. moupinense, R. macronulatum, Escallonia Philippiana and E. exoniensis, Ribes laurifolium, the hardy Heaths, Erica carnea, E. c. alba and E. mediterranea hybrida, Daphne Mezereum, and the trailing D. Blagayana. Skimmia Fortunei is laden with berries.

Blue flowering plants noted in bloom were Lithospermum prostratum, Anchusa myosotidiflora, Vinca Bowle's var., Anemone angulosa and Anemone angulosa nivea, the last with white flowers ¾-inch across; of the Saxifragas in flower there are drifts of S. apiculata and S. Albertii.

The large, green-tipped flowers of Leucojum vernum border the path entering the rock garden.

In the sheltered borders between the plant houses is a clump of a giant Snowdrop, Galanthus nivalis robustus, with flowers 1½ inch across on 1 foot long peduncles. Alongside is Anoiganthus breviflorus, with umbels of yellow, tubular flowers, averaging five flowers to the spike. Here, too, are the bright yellow flowers of Adonis amurensis. Flowering on the indoor rockery are Leontice Smirnowii, with racemes of clear yellow flowers and pea-green foliage, Dendromecon rigida, the yellow-flowered Tree Poppy; Brachycome Sinclairi, a small, white-flowered Composite; Gaultheria fragrantissima, and Osteomeles anthyllidifolia, the last bearing clusters of fragrant, Hawthorn-like flowers.

In the plant houses the Cypripediums in the "E. H. Robertson" collection are at their best; they are in fine condition, and flowering freely. Showy Orchids in flower are Phalaenopsis Stuartiana, Aerides Vandarum, Epidendrum gattonense, Vanda caerulea, Calanthe Veitchii, and C. Sanderiana. A flowering batch of Begonia socotrana is interesting, the species being one of the parents of B. Gloire de Lorraine. Other handsome greenhouse plants flowering are Magnolia conspicua, Rondeletia odorata breviflora, coloured vermilion with a conspicuous yellow eye; R. Roezlii, with trusses of white flowers; Brunfelsia calycina, and Monochaetum alpestre. *Fred. W. Jeffery.*

COLOUR IN THE GARDEN IN WINTER

THE Rt. Hon. J. R. Clynes has recently mad an eloquent appeal through the Press for consideration of colour schemes in the building o our towns and villages, and incidentally paid high tribute to the landscape gardener.

During this recent wonderful autumn an winter season berried trees and plants have impressed gardeners with their great possibilitie at comparatively little trouble and cost, for producing winter colour schemes.

I think not even the gardens of the "sunny South" can compare with a well-planned Englis garden in a season when we have our full shar of sunshine; but a scheme for carrying on th effect through the winter, while not so common is full of opportunities for brightening the landscape and introducing a sense of warmth an colour to the surroundings of our homes durin the dull months of winter.

Not for many years have Hollies been so gorgeously clothed with berries as has been th case in the season just closed, and their effec in many a country road and woodland in th winter sunshine has been indescribably beautiful During the autumn of last year I was impresse by the effect of the Mountain Ash, weighed dow with its crop of scarlet berries, against a background of Scotch Fir. Again, what is mor beautiful than a group of the lovely Spindl Tree with its brilliantly coloured pink capsule as one meets with it in the wayside woodlands o Monmouthshire and elsewhere?

There are many vacant spaces in towns an villages which, at very small expense, might b beautified with such subjects as Cotoneaster, an particularly the lovely Himalayan species, C frigida. This tree is not so well known as it merits deserve, especially as it does well in towns There is a particularly fine specimen overhanging the road near St. Mark's Church, Newport

The Welsh Town Planning Association a few years ago introduced Cotoneaster Simonsii as hedge plant in the garden suburb of Barry. Thes hedges have been a source of daily delight t passers-by during the winter; where little resistance is required this is a most suitable subjec for a low hedge and does not require much attention, while it forms a pleasing contrast to th ubiquitous Privet.

Many an unsightly old wall might be clothe with the well-known C. microphylla, and i suitable places, especially on grey limestone that most beautiful introduction of recent years Berberis Wilsonae, and its hybrids might b planted. The subjects perhaps best known fo winter decoration are Crataegus Pyracantha an C. P. Lalandei.

It was my privilege to see recently most perfect specimens of these plants on the histori Bishop's Palace at Matherne, and at Mounto House, Chepstow, the beautiful home of Maj Holden, in each case planted by a great lover o gardens, Mr. H. Avray Tipping. In the latte case the tree was planted alternately with golde Euonymus on a wall facing north-east, an allowed a liberal amount of freedom, which i too often denied to wall plants.

Opposite to this is a wall well furnished wit Garrya elliptica, a shrub much neglected nowadays. Though not brilliant in colour, the long gracefully drooping, pale green catkins give most pleasing effect. The Garrya is undoubtedly one of our most useful winter-flowering shrubs.

Chimonanthus fragrans, the Winter Sweet, may be usefully associated with a scheme of this kind and, indeed, should never be omitted.

The winter Honeysuckle, Lonicera fragrantissima, and the Witch Hazel have also fragrant flowers, and each is worthy of a place in the shrubbery.

For one old favourite I would put in a special plea, and advise, as the Americans, to "plant one more" and plant it in a suitable place where it will have space in years to come to display its beauty. I refer to Arbutus Unedo, a tree that is most suitable for planting in gardens nea the coast. It is somewhat slow in growth, and on that account is, perhaps, neglected, but there is no tree that I know to compare with it when furnished with a plentiful crop of scarlet fruits. *Henry Jenkins, Tan-y-Fron, Barry.*

HARDY FLOWER BORDER.

HERBACEOUS PERENNIALS FOR CUT FLOWERS.

Hardy perennials often remain three, four and sometimes more years in beds and borders without being transplanted; therefore it is necessary to have the soil in first-class condition when they are planted. Water should be applied frequently but judiciously to the plants during times of drought, or they will undoubtedly suffer.

Planting is best done during autumn and spring, when they are at rest or commencing their season's growth. They need to be set sufficiently far apart to allow of their full development as well as to admit of the free use of the hoe in keeping the soil free from weeds and to conserve the natural soil moisture.

In planting the grower should have a knowledge of the habit of the kind or variety he is dealing with. For example, Paeonies, Delphiniums, Phloxes and other large growing plants require plenty of space—from two feet to three feet apart—while the dwarfer or more compact growing subjects may be set from six inches to twelve inches asunder, or as desired.

The propagation of hardy herbaceous perennials is very simple; some are increased by division, some from cuttings and root cuttings, and others from seed. If the plants are lifted and divided to a desired size, any weeds that may be present taken from their roots, and replanted during autumn or spring, they will very quickly become established and flower the following season. Plants with fleshy tap roots such as Poppies and Anchusas, may be propagated from root cuttings in a similar manner to Seakale.

The most opportune time to cut flowers for either exhibition or house decoration is in the early morning or after sunset, as they are then in the best condition, being full of moisture. If required for exhibition or for sending a distance, they should be placed in water for a few hours prior to packing them. When packing flowers for transit the bloom should be perfectly dry.

For furnishing cut blooms the following list, in alphabetical order, may be recommended.

Achillea Ptarmica Perry's White has double, snow-white flowers in bunches. The plant will grow in any garden, and is wonderfully free blooming, the spikes lasting well in water. The variety "The Pearl" is also splendid for furnishing cut blooms.

Aquilegias may be had in great variety, and are well adapted for cutting, but need to be packed with care. The golden yellow flowers of A. chrysantha are exceedingly graceful, as also are those of A. canadensis, which has dull red and yellow flowers; A. glandulosa and A. caerulea, the last with pretty blue and white flowers. The snow-white variety nivea grandiflora s also valuable where white flowers are in request; ndeed, all the Columbines are useful for cutting. The varieties of Anemone japonica are charming for late summer and autumn display, and much prized as cut flowers—they may be had in different shades from the pure white of Lady Ardilaun, Honorine Joubert, and Coupé d'Argent to the rose and deep reds of elegantissima, Queen Charlotte, Lorely, and Prince Heinrich. All the forms of this Anemone are exceedingly beautiful, and include single and double forms, Artemisia lactiflora is a most desirable plant for the back row of the herbaceous border. It forms a tall bush of handsome foliage, and has pretty, milky-white, sweet-scented flowers, resembling those of a Spiraea. It is autumn flowering, and the spikes are very showy when cut and placed in large vases with Kniphofias. Coreopsis grandiflora Perry's variety, is a plant of recent introduction and certainly one of the most valuable for cutting, as the blooms last many days in water. This Coreopsis forms large bushes of bright green foliage, amongst which rise stout wiry branching stems from two feet to three feet tall, bearing numerous large, semi-double, rich golden yellow flowers. The species lanceolata, grandiflora and auriculata, are also useful as cut flowers.

Chrysanthemum maximum is a popular favourite, and much prized for cutting. The best sorts are Excelsior, of recent introduction, and undoubtedly the best and largest of all; Mrs. L. Bell, King Edward, Robinsonii, the laciniated var.; also Kenneth and Ophelia. All the varieties are exceptionally fine for use as cut flowers, and the stems grow from three feet to four feet tall. The flowering of this easily grown plant extends from June till September. The perennial Larkspurs or Delphiniums provide a wide range of shades of blue, and are effective planted either in groups, or in sections, to break formal lines in any system of planting The colours range from the most delicate soft blues to the richest dark blues and purples, with a few white and cream varieties, in single, semi-double and double flowered varieties; they also vary in the formation and density of spike.

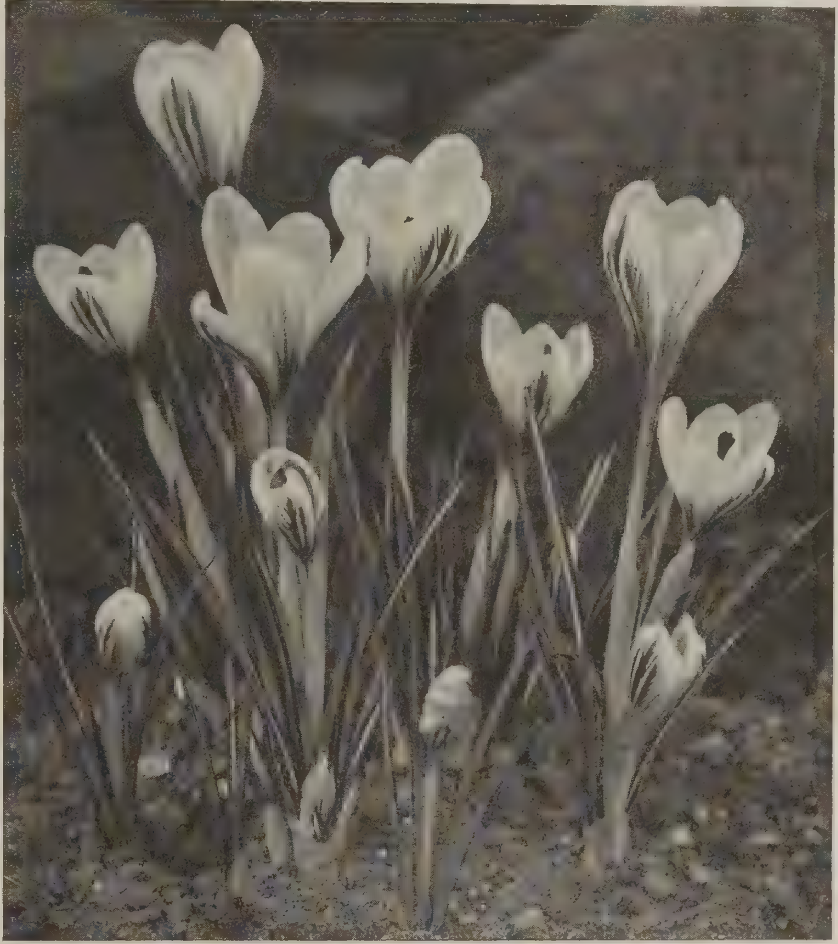

FIG. 51.—CROCUS VERSICOLOR; A POPULAR GARDEN SPECIES (SEE PAGE 103.)

Members of the "Belladonna" type lend themselves admirably for cutting purposes, as they have numerous branching stems, and are very free flowering. The varieties are numerous and all are equally effective.

Gaillardia grandiflora, the Blanket Flower, is a very showy subject for the flower border, and extremely valuable for cutting on account of the long flower stems and duration of flowering. There are many varieties, producing large flowers, in shades of lemon, yellow and orange, whilst many have broad crimson and maroon centres. When planted in groups, they give a fine effect on light, warm soils. The roots require a little protection in the form of a mulch during severe weather.

Heucheras have long, graceful, wiry stems from 1½ feet to 2½ feet long, bearing pretty, pendant flowers. The plants make dense tufts of leaves, resembling the Pelargoniums. Associated with other flowers, Heucheras give a very pretty effect, and they may be had in all shades, from pure white to deep rose, and shades of coral to deep crimson. The flowering period is June to August.

Pyrethrums in single and double forms have much to recommend them, and are invaluable as cut flowers, having stout, wiry stems. They lend themselves to any form of decoration, and the flowers are available during summer and autumn. The main crop is produced from the end of May to early July, but by cutting down the old spikes after flowering, a supply of bloom may be had during August and September. The plants are gross feeders, preferring a rich, loamy, well trenched soil, and plenty of decayed manure. The roots need copious supplies of water during the season of active growth. The flowers are very varied in colour, from pure white through all shades to deep crimson, in both single and double varieties.

Other hardy perennials suitable for supplying cut blooms are Rudbeckia, Helianthus, Papaver orientale, P. nudicaule, Erigeron, Eryngium, Hemerocallis, Kniphofia, Paeony and Gypsophila paniculata plena. The last is an example of the few plants that have been improved by doubling. The snow-white, double flowers are produced in abundance on stout wiry stems, and have a light appearance, which renders them most effective when associated with other flowers. *W. Logan.*

CULTURAL MEMORANDUM.

MONTBRETIAS.

Where the corms of Montbretia have been wintered in a cold frame, as is practised by some growers, they should now be separated and replanted in their flowering quarter, having previously well dug and enriched the ground. Clumps of Montbretias that have grown undisturbed in the same place year after year should also be lifted and divided. A sunny situation suits this decorative plant best, but it is not fastidious in this respect, and other sites will give good results. Non-flowering corms should be planted elsewhere, to develop into flowering specimens. *C. T.*

EDITORIAL NOTICE.

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Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

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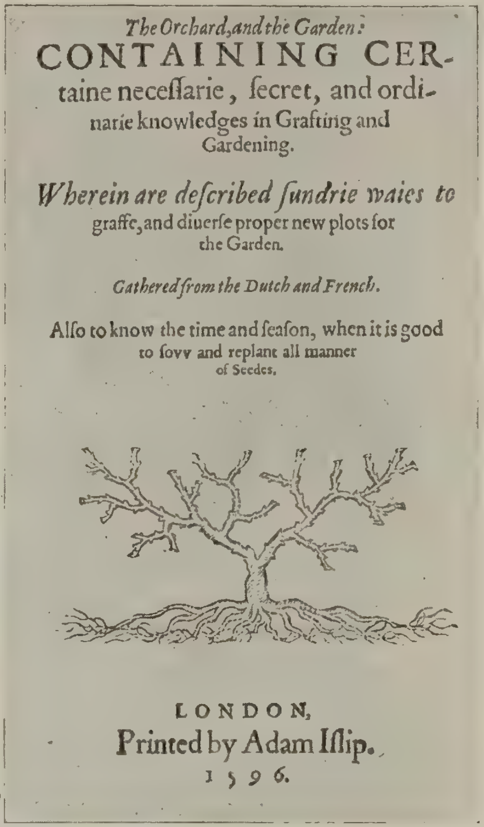
"THE ORCHARD AND THE GARDEN," 1596.

THE danger of assuming finality in bibliographical matters is being constantly illustrated as old libraries, like that of Britwell Court, are being thrown on the market. The distinction of being the first edition of this or that rarity in early English literature is frequently revised as some unrecorded and earlier edition comes to light. This has just happened in connection with one of the rarest of Elizabethan books on gardening, *The Orchard and the Garden*, of which the only edition hitherto known bears the date of 1602. At the sale of a library in the country a few weeks ago, Messrs. Quaritch purchased a beautiful copy of the same little book with the date on the title page of 1596, six years earlier than that previously known. Every effort on the part of Messrs. Quaritch and myself to trace a contemporary record of this book has failed; it is not even mentioned in any of the usual bibliographical books of reference, nor is it to be found in any of the catalogues of the chief book sales held in London during the last two or more centuries. A more exhaustive search may eventually find some reference to it, but the chances seem remote. Even the 1602 edition was supposed to exist in only one copy —at the Cambridge University Library—but of recent years two others have come to light; one is now in the Lindley Library, and the other was in a sale in New York in February, 1920

Messrs. Quaritch have kindly lent me their copy of this little book—unique so far as is now known—and have courteously permitted photographs to be made of the title page and the last page. On placing the 1596 edition by the side of that of 1602, it would seem at the first glance that the only differences were in the dates. But a careful comparison of the text page by page leaves no room for doubt but that the whole of the text was reset for the 1602 edition. The fancy initials—they might be termed "decorative" if they were not so battered in each edition—are quite different in the two issues; a few words are differently spelt, *i.e.*, "alreadie" 1596, becomes "already" 1602 (p. 22); "middest" 1596, is altered to "midst" (p. 46); and two or three of the pages contain a few words more or less in one edition than in the other. The text in both is in black letter type, whilst the headings of the paragraphs are in Roman lower-case type. In both cases the collation is the same—A—H in 4's, 32 leaves, the pagination ending on p. 61. It is reasonably certain that the first edition was sold out, and as the demand for it continued, the publisher had a new edition set up as nearly as possible similar to the first; a different compositor would follow his own convenience in the matter of spacing, and would correct what were to him errors in spelling.

A noteworthy feature of this handy little guide to gardening consists of the many woodcuts of garden designs, mazes, garden tools, and so forth, most of which appear to have been borrowed from T. Hill's *Art of Gardening*, 1568, and other works of the period, a period very fruitful indeed in books on gardening and kindred subjects. There are, in all, 24 pages of such wood-cuts, two of which are full-page illustrations showing the "manner of watering with a pipe in a tubbe," and "watering with a pompe by troughs in a garden."



The Orchard, and the Garden:
CONTAINING CER-
taine neceſſarie, ſecret, and ordi-
narie knowledges in Grafting and
Gardening.

Wherein are deſcribed ſundrie waies to
graffe, and diuerſe proper new plots for
the Garden.

Gathered from the Dutch and French.

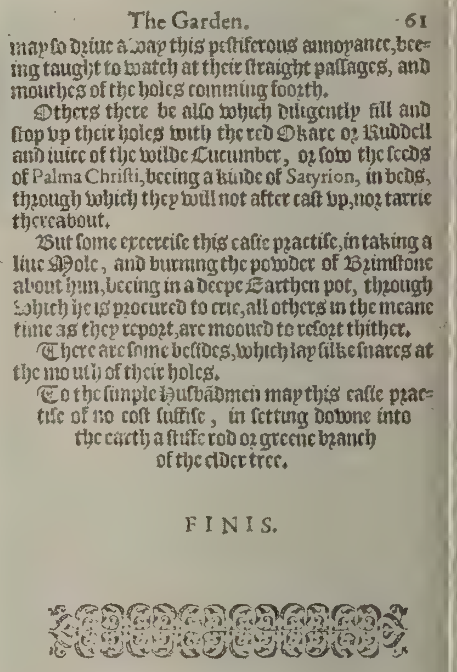
Alſo to know the time and ſeaſon, when it is good
to ſovv and replant all manner
of Seedes.

LONDON,
Printed by Adam Iſlip.
1596.

FIG. 52.—TITLE-PAGE OF "THE ORCHARD AND THE GARDEN."

The book itself is a compilation, as is frankly indicated on the title page, "Gathered from the Dutch and French." There is no indication of either the name or the standing of the compiler, and so the book must ever remain a problem of anonymity. Mr. Bunyard has reprinted the whole of the text, and has given a facsimile of the title page, in *The Journal of Pomology* of August, 1921 (pp. 246-261). It would be an interesting task to trace back some of the directions to their original sources, and one wonders if the anonymous compiler obtained some of his inspiration from Leonard Mascall's *Booke of the Arte and Maner how to plant and graffe all sortes of trees*, of which several editions appeared between 1572 and 1592, and was admittedly derived from French and Dutch sources. A good many of the Elizabethan books on gardening were translations or adaptations of Continental works, particularly those of the French or Dutch, who were supreme as gardeners. *The Orchard and the Garden* must have been a cheaper gardening book than most of its rivals, and its comparatively short, "catchy" title an easy one to remember. In 1618, William Lawson appropriated its title with a much better and more exhaustive book, *A New Orchard and Garden*, which had a long life of over 60 years in various editions. Adam Islip, the printer of both editions of *The Orchard and the Garden*, was a Freeman of the Stationers' Company, and printed many books from 1578 until his death in 1639, and among others was the 1594 edition of Didymus Mountain's (Thomas Hill) *The Gardener's Labrynth*, completed by Henry Dethick, another popular gardening book which ran through many editions between 1563 and 1608. Judging from Mr. Sayle's admirable *Catalogue* of the early English printed books in the University Library at Cambridge, Adam Islip was a printer rather than a publisher, though the two callings were more or less synonymous during his time. Besides *The Orchard and the Garden*, he has a further claim to the notice of the bibliographer of gardening books, for in 1616 he printed a translation of Charles Estienne's *Maison Rustique*, and was one of the three printers of the 1633 issue of Johnson's "very much enlarged" edition of Gerard's *Herbal*.

Messrs Quaritch's copy of the first edition of *The Orchard and the Garden* contains the 18th century armorial bookplate of Sir George Shuckburgh, Bt. This would be the 6th Baronet, Sir George A. W. Shuckburgh (1751-1804), whose second wife was the daughter and heiress of James Evelyn of Felbridge, and who was a distinguished mathematician and a Fellow of the Royal Society. The Cambridge University Library copy of the 1602 edition has also an interesting *provenance*. Mr. Sayle, the librarian, tells me that it contains the bookplate of the Royal Library (Bishop Moore's collection) presented to the University in 1715 by George I, who, at about the same time, sent a troop of horse to Oxford, two transactions which gave rise to two famous epigrams by Dr. Trapp and Sir William Browne. The book has also, in a 17th century hand, the following delightful entry: "The name of the Castell wheare my Cosen Thomas Mann is in is called Celling Dalle within 3 myles of Londondery. Inqwyer in Bucklersberey for hors and howse, Mr. Tuker." Here, at all events, we have a clue, slight though it is, to the identity of a former owner. The copy now in the Lindley Library has no indication of former ownership, but two of its pages are filled with MS. recipes. Perhaps, as time goes on, and as old and neglected libraries in country houses come into the market, other copies of both editions of *The Orchard and the Garden* may come into the market. *W. Roberts.*



The Garden. 61

may ſo driue a way this peſtiferous annoyance, beeing taught to watch at their ſtraight paſſages, and mouthes of the holes comming foorth.

Others there be alſo which diligently fill and ſtop vp their holes with the red Okare or Ruddell and iuice of the wilde Cucumber, or ſow the ſeeds of Palma Chriſti, beeing a kinde of Satyrion, in beds, through which they will not after caſt vp, nor tarrie thereabout.

But ſome excerciſe this eaſie practiſe, in taking a liue Mole, and burning the powder of Brimſtone about him, beeing in a deepe Earthen pot, through which he is procured to crie, all others in the meane time as they report, are mooued to reſort thither.

There are ſome beſides, which lay ſilke ſnares at the mouth of their holes.

To the ſimple Huſbādmen may this eaſie practiſe of no coſt ſuffiſe, in ſetting downe into the earth a ſtiffe rod or greene branch of the elder tree.

FINIS.

FIG. 53.—LAST PAGE OF "THE ORCHARD AND THE GARDEN."

MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

o. IX.—Li-Chiang again, and Mr. Forrest.

The weather now turned fine again, at least n the plain, though the mountains usually ad their heads buried in the clouds. The hole country looked beautifully fresh and reen, the contrast between the red earth nd the verdant forest being most striking. My collectors revisited the limestone range above the Yang-tze, but brought back little hat was new to me, a white-flowered, cushion ndrosace being their best find. Almost everyhing else I had found on the Mu-li range in he previous year. They also went back to ion Rock, with no better success. However, subsequently came to the conclusion that he Veronica I found there in seed (of which had hopes) was none other than the common i-chiang Veronica—V. Forrestii I believe it s called. On July 2, having at last received mail, we started westwards again in the irection of Chung-tien. In a far corner of he plain, a species of Commelina was in flower; he only plant of its order I ever saw in the hole region.

We crossed the Yang-tze divide a little to he north of the main pass. In the forest ere a few scattered plants of Vaccinium modestum, which turned up at Mu-li last ear, notable as being one of the very few of he smaller members of the Ericaceae found ereabouts.

Another forest plant, found in a bog, was a ariety of Primula Poissonii, with pendant maroon-red flowers. At least, I suppose it is nly a variety, though in many respects it merits distinction as a species. Here, at any ate, plants were scattered amongst true P. Poissonii (and easily distinguishable from it), s well as in little colonies by themselves, lways in deep shade, however; whereas P. Poissonii wanders out into the open bogs. The plant turned up again at the Kari Pass, onsiderably further west.

In two days we reached the apex of the Yang-tze loop, but did not descend to the river, as we heard the ferry-boat was not plying. There was no means of crossing either the Yang-tze, or the Sho-lo river, which joins the ormer at the apex of the loop, and still eparated us from Chung-tien territory; so I lecided to return to Li-chiang and start again.

During the two days' march down the Yangze to the ferry at Fêng-k'ou, I found several nteresting plants, including a Violet-flowered Anemone, with shimmering, satiny petals; a Violet-flowered Ipomoea, scrambling over the bushes; and a small, white trumpet Lily with hairy leaves.

After climbing out of the sultry gorge at Fêng-k'ou, we found the mountains of the loop overed with flowers. For the first time in his part of the world I saw masses of Strobilanthes in the forest undergrowth, growing socially, as they do in the forests of Upper Burma; one meets with nothing of that sort t Mu-li. What had been bog in April was ow meadow, knee-deep in flowers; Rheum Alexandrae, species of Pedicularis, Polygonum, Habenaria, Caltha, and many more.

Even at this short distance, the forest was richer in trees than it is at Mu-li. A large, white-flowered, fragrant Hydrangea was much n evidence, also a species of Tilia. Lilies, oo, began to appear in more variety, and I aw three species new to me, including L. Duchartrei. Mr. Forrest maintains there are no Lilies in Western China, meaning of course, no Lilies worth bothering about. I am inclined to agree with him, and to go even urther than that, because I dislike the group ltogether. Certainly Lilies are "swell" plants, with a certain stiff, masculine beauty. "Lily," of course, ought to have been a boy's name.) But there is a hint of foolishness about them—they are not quite genuine.

On the limestone cliffs at Chang-san p'ing I found a small Primula new to me, and quantities of Meconopsis lancifolia, but always with four petals only; now the Mu-li plant invariably has six or seven petals, and one naturally asks: Are they really the same? Primula Forrestii—in seed—was abundant here; I have not met with it further north, for, like most of the Suffruticosa group, it is curiously local, though common enough in its locality. Other plants on the cliff were Roscoea, snow-white Thalictrum, Didissandra, etc.

We made an excursion across the backbone of the loop to the western limb of the Yang-tze, where it flows more or less north. In the river gorge the wonderful cinnabar Androsace coccinea was in flower, the farthest point south I have ever come across it. Here, too, was a dwarf, white-flowered Aristolochia. There were many shrubs, too, no fewer than three species of Bauhinia being in flower.

The rains now set in in earnest, and we were badly caught on the banks of the Yang-tze. Turning south, but bearing slightly away from the river, where it issues from the gorge it has cut through the Li-chiang range, we entered the Pine forests. One of the Lavender-flowered bog Rhododendrons was in bloom for the second time—it was already in full bloom when we passed this way in April. This second flowering may be due to an earlier rhythm, impressed on the plant when the climate was different, and not completely suppressed by the altered conditions, which have imposed a new rhythm. For throughout this region there has undoubtedly been a gradual change of climate.

On July 12 we made a long march, rejoining the (relatively) main road by which we had gone northwards in April, and thence to the tiny village by the Hê-shui-ho, where we had pitched our first camp. We did not halt here, however, but pushed on to the Pai-shiri-ho, rather rashly as it turned out. It was already dusk when we reached the meadow, and just then a heavy thunder-storm broke over the valley. The result may be imagined! All down this stretch of the loop, Primula Bulleyana was in flower—it really is a fine colour, much finer, to my thinking, than P. Cockburniana. Evidently my No. 3951 from the Yung-pei district is simply P. Bulleyana, which thus crosses the Yang-tze.

On the following day we were too wet and weary to take much notice of the vegetation, though I did get fleeting glimpses of plants quite new to me—species of Linum, Oreocharis and Impatiens, for example. However, as we were now within a few hours' march of Li-chiang, on Mr. Forrest's private estate, so to speak, neglect of these treasures did not much matter. In four hours we reached the village at the foot of the snow peaks, where Mr. Forrest himself was in residence; also an American botanist, a Mr. Rock, who was working for the U.S.A. Department of Agriculture. I spent July 14 in their company, and on the following day reached Li-chiang. Here I spent four days, reorganising, and on July 20 set out on another journey, travelling this time north-westwards, so as to keep to the west of the Yang-tze. By this time the rains were well under way, and it would rain for forty days, according to local Chinese weather lore; the period of the Flood, be it noted.

F. Kingdon Ward.

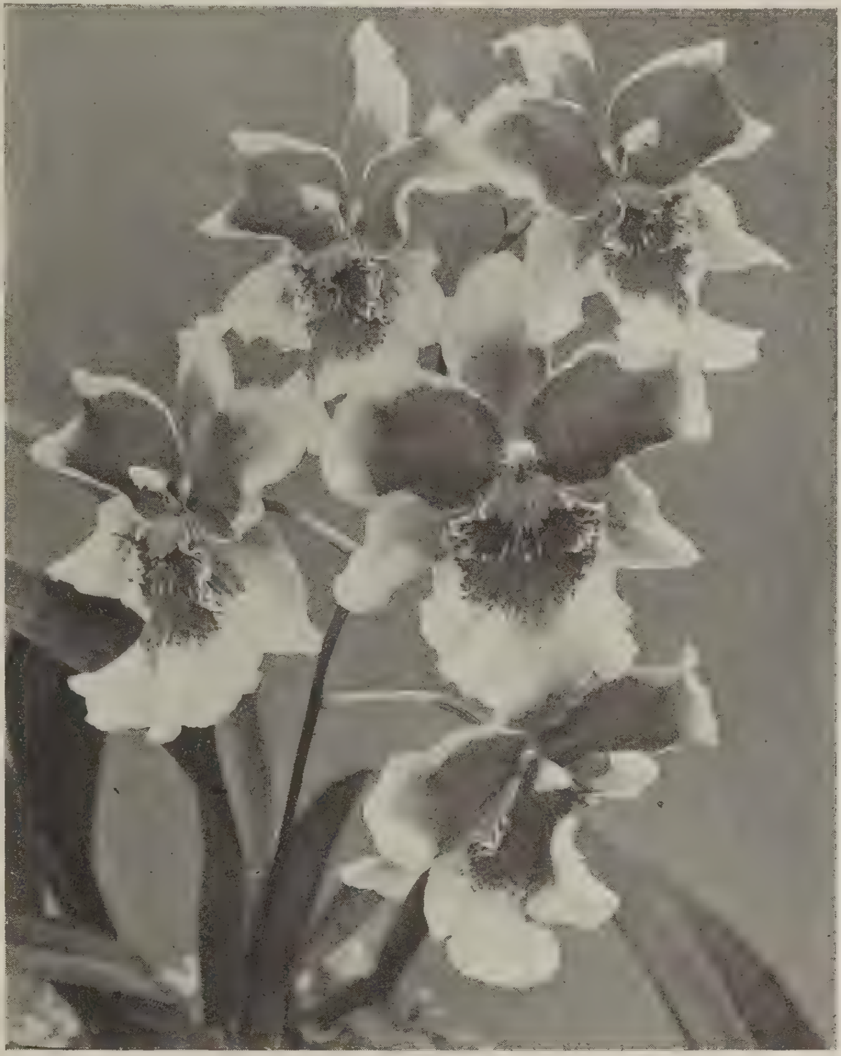


Fig. 54.—Odontonia Baroness Schroder. First-class Certificate R.H.S., February 13 (see page 96).

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* The previous articles by Mr. Kingdon Ward were ublished in our issues of May 14, June 18, July 23, ugust 20, September 3, October 8, 29, 1921; January . 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, uly 1, 15, 22, August 5, 26, September 9, 23, October . 21, November 4, 18, December 2, 16, 30, 1922; anuary 13, 27, and February 10 1923.

INDOOR PLANTS.

STOVE CLIMBERS.

Many beautiful, free-flowering climbers are very little known and seldom met with in the stove or warm conservatory, therefore it may be useful to draw the attention of readers to a few which make an attractive display when in flower, hanging from the roof rafters of these warm houses. Amongst them is Ipomoea Horsfalliae, one of the most handsome, evergreen, winter-flowering climbers. Its deep, rose-coloured, trumpet-shaped flowers are borne in dense, axillary clusters; the individual flower is short-lived, but, once the plant is established, the blossoms are so freely produced in succession, unfolding a few at a time, that a showy display is maintained over a considerable period. The foliage is bright green, which adds to the beauty of the plant. It is a rapid grower, readily clothing a large surface of the pillar or roof in a short time. The young shoots require a certain amount of attention when in full growth to prevent them becoming entangled in each other, and some of the weaker shoots should be cut away altogether. This Ipomoea does best planted out in a border, with plenty of room for the roots to ramify in. The soil should consist of two-thirds good, rough, turfy loam, one-third fibrous peat or leaf-mould, with silver sand added. The pocket in which the plant is set should be well drained with clean crocks and brick rubble. To keep the plant in a healthy condition, a warm, moist temperature is essential throughout the year. During the growing season it requires liberal supplies of water, but after flowering, water should be afforded more sparingly until the spring. Before the plant starts into growth, the branches should be shortened. It may be increased by grafting well-ripened pieces on the roots of I. Sellowii, or by cuttings in the spring.

I. Learii is a very free-flowering species, with dark red flowers, and commences to bloom in September, remaining in flower for a considerable time. This plant does well as a pot specimen or planted out.

I. ternata (syn. Thomsoniana) is a very effective evergreen climber, producing white flowers slightly striped with green. This species requires similar treatment to that afforded I. Learii, and may be increased from cuttings formed of the short side shoots and placed in a moist bottom heat. The cuttings should not be allowed to become dry. A winter temperature of 55° to 60° and a summer temperature of 65° to 70° are suitable.

Schubertia grandiflora (syn. S. graveolens) is a beautiful, evergreen climber, not often met with in gardens, doubtless because it is not so well known as many other climbers, otherwise it would be in almost every collection. It is of rapid growth, very free flowering, and is to be highly recommended for growing in warm houses. It makes a very effective display, its white, fragrant flowers hanging in clusters, resembling those of the well-known climber Stephanotis floribunda. The flowers are most agreeably fragrant, the perfume they exhale in the house being like that of a Coconut. The blooms turn yellowish with age, and the plant is often regarded as a yellowish-flowered species. The blooms are invaluable for the making of wreaths and crosses. The plant requires similar treatment to that afforded the Ipomoea, and it flowers freely, grown as a pot specimen, but does not grow so vigorously as when planted out. It may be increased from cuttings of short, half-ripened side shoots placed over moist bottom heat.

Combretum purpureum is a beautiful evergreen climber, with racemes of purplish crimson flowers which make a grand display in the autumn, hanging gracefully from the roof rafters or wires. It may be grown in pots or planted out; in the latter case it grows more rapidly and produces larger clusters of flowers. It requires good drainage, and should not be over-potted. Ordinary soil of good quality is suitable, and it should be mixed with a little charcoal and crushed bricks, or potsherds, to render the texture open. A winter temperature of 55° to 60° and a summer temperature of 65° to 70° are suitable.

The stock may be increased from cuttings of young, half-ripened side shoots, taken off with a heel if possible, and placed singly in small thumb-pots in sandy soil. The cuttings should be rooted in a moist bottom heat and not allowed to get dry, as this is not a free-rooting plant.

Clerodendron Balfouri (syn. C. Thomsonae) is a beautiful, compact, evergreen, very floriferous climber, lasting a long time in flower during the summer and autumn. The deep red flowers have pure white calyces; the blooms are set off by bright green foliage. This Clerodendron is a very useful plant for decorative purposes, and may be easily grown to flower freely in 5 to 6 inch pots, and trained to a single 2 to 3 feet stick, or it may be grown into half specimens or full specimen plants suitable for placing in the conservatory and mansion when in flower, or to brighten up miscellaneous groups of plants at exhibitions. It may also be highly recommended as an excellent subject for planting in borders in a warm conservatory, for covering pillars and rafters.

The stock may be increased by cuttings of half-ripened side shoots when the latter are developing in the spring, or by ordinary cuttings in the autumn placed under a hand-light in bottom heat. The plant grows freely in a mixture of light, turfy loam, fibrous peat, or leaf-mould, with silver sand added. After flowering, the plants should be kept moderately dry at the roots until the spring, when they should be pruned back to encourage fresh growth to develop. The summer temperature should be 65° to 70°, and the winter temperature 55° to 60°.

C. splendens is a very effective decorative climber, quite distinct from the others. The flowers are of a rich crimson, and very freely produced during the summer. This species may be grown either as a pot plant or planted out; it requires similar treatment to that afforded C. Balfouri. The two plants make a very pleasing contrast when growing together in a house. None of the climbers described above will be subject to attacks of insect pests, provided they are grown in clean surroundings. *John Heal, V.M.H.*

FORESTRY.

THE MOST PROFITABLE TREES TO PLANT.

When looked at from a purely commercial point of view, the best trees to plant are such as will produce the largest quantity of the most valuable timber in the shortest space of time. There are, however, other points to be considered, such as demand for the timber and suitability of the tree for planting in a variety of soils and different situations. As prices rule at present, the Willow, if the timber is suitable for the manufacture of cricket bats, is by far the most profitable tree to grow; but, on the other hand, only a very limited number of merchants deal in this wood, its uses being mainly restricted to the bat-making industry, and to a lesser extent for the making of artificial limbs. Soil and situation are most important factors in the cultivation of the special Willow that produces timber suitable for the purposes referred to, for only in a few of the Eastern English counties and other places can the tree be successfully cultivated and the best quality timber obtained. But apart altogether from these seeming drawbacks, the Willow in suitable situations is, as before mentioned, by far the most profitable tree to cultivate when rate of growth and price of the timber are considered.

Quite recently £1,000 was paid for 100 Willow poles, of thirteen years' growth, and I was shown trees on the Tirling property of Lord Rayleigh, in Essex, under fourteen years' growth, for which the average price received was round about 20s. per cubic foot, or from £8 to £10 per tree. In a long experience of timber culture in this country, this is by far the most profitable item that has been brought t my notice. Being propagated from cuttings o sets, the first cost of planting is comparativel small.

Quite different is the Ash, which will succee and produce valuable timber in most parts o the country, and is a most reliable tree fo general forest planting. The timber is alway in considerable request, and for wood of th best quality up to 3s. 6d. per foot is readil obtained. For purposes in connection with th war, the country was stripped of its best As timber, so that first-class trees are scarce, an likely to be so for a long time to come. Eve in a young and immature state, Ash timber i of considerable value, and when cultivated i close plantations is greatly in request by th makers of agricultural and other implement Wherever suitable soil is available, by all mean plant the Ash in quantity.

Sycamore is another of the most valuable o our timber-producing trees, and it succeeds we at fairly high situations where the soil is a all suitable. Large butts of Sycamore have sol frequently of late at 3s. 6d. per cubic foot. I is a tree of rapid growth, and is not subject t disease.

Beech, where the soil is suitable, such as o a chalky or gravelly nature, is a profitable tre to grow, the timber being in demand at up t 1s. 4d. per foot where felled. As it reproduce its kind freely from self-sown seeds, the cos of restocking is small. This is particularly th case on the chalk formations of the Chilter Hills, where seedlings spring up with the utmos freedom, and by gradually cutting out the olde trees a young crop is provided. This syste of reproduction has been going on regularly i some of the plantations in Bedfordshire an Buckinghamshire for long periods.

Poplar is one of the most profitable trees t cultivate in damp ground, the rate of growt being rapid, while the timber is greatly i demand for the box-making and match trades The selling price varies considerably with th situation of the timber, but about 1s. 2d. pe foot is commonly paid for large, clean butts.

Timber of the Sweet or Spanish Chestnut ha come to the front since the war, and price have been more satisfactory than was previousl the case. It is a valuable wood for many pur poses, and sells at about 1s. 3d. per foot fo clean, bulky trees.

The Oak should be included where soil an site are favourable, but as a couple of centurie are required to produce mature timber, the tre is rarely planted for forest growth, thoug largely for park and farm purposes. The timbe is cheap on the market, plenty being offered a present at the low figure of 1s. 2d. per foot i the woodlands. With a great influx of American Japanese and European timber of this kind, i is not at all likely that the price of that o home growth will increase for a long time t come.

Going still further down in the scale of profitable timber trees, the Elm and some other specie might be included, but they rarely enter int the formation of plantations that are formed fo purely economic purposes.

Amongst Coniferous trees, the most profitabl to plant are the common and Japanese Larches the Sitka Spruce, Scotch, Weymouth and Co sican Pines, and the Douglas Fir. The Larc should receive a large share of attention, a it is by far the most valuable Coniferous tre for timber production that has been introduced. Judging by existing plantations of the Silver or Sitka Spruce, and the quantity and quality of timber produced, this tree has a bright future before it in British commercial forestry. It can also grow at high altitudes and on poor soils—that is, where an abundance o moisture is provided. The Douglas Fir is only suitable for planting in sheltered sites in this country, but produces a large volume of timbe when growing at low altitudes and in a light, loamy soil. The Scots Pine is invaluable fo growing on exposed lands and on the poorest of soils, and this is also true of the Corsican Pine, while the White or Weymouth Pine wil only attain perfection on deep, sandy and moist soils.—*A. D. Webster.*

FAILURES WITH PLANTS.

LIKE all his valued "Garden Notes from S.W. cotland," those by Sir Herbert Maxwell in your sue of January 20 (p. 36-37) are full of interest nd evoke much thought. Unfortunately, too nany people have similar disappointments with nost, at least, of the plants which have baffled im. It is but little comfort, I grant, or any gardener to learn that others ave been disappointed as well as himlf, yet it is some consolation as it points o the fact that there are certain difficulties, requently insurmountable, which we encounter n our gardening. Sir Herbert refers to the Iepatica. With this fine old plant we can lay own specified directions, but, even when these re religiously followed, the results may be ggravatingly disappointing. I know of many laces where these flowers flourish exceedingly nd grow into big clumps. In other places, nder what appear to be precisely similar conitions, they dwindle away and refuse to thrive. ne may suggest shade in summer, a great ictor in the cultivation of the Hepatica, but ven this may fail. This happens in almost eighbouring gardens, and the problem of iagnosing the cause is insoluble.

With Romneya Coulteri the question of sunnine is, undoubtedly, an important factor, but ie comparison drawn by Sir Herbert Maxwell etween his failure in the "snuggest" places Monreith, and the success at Castle Kennedy, nly a short distance away, is illuminating. I ay point to its blooming at Culzean, and its ilure to flower, although it forms buds, in a ery sunny place at Formakin, Renfrewshire, other instances. I could cite others were it ecessary. One would have thought that the onditions at Monreith would have been almost eal for Cypripedium spectabile and C. acranthum, but with these, again, there are o many who will sympathise with Sir Herbert ll the more deeply seeing that they have had milar disappointment. Then the smaller Iertensias named by him are too frequently ort-lived in gardens. We sometimes attribute eir loss to slugs, but these enemies are not lways guilty of the crimes attributed to them. xalis enneaphylla (Fig. 55) is, I consider, much ore satisfactory, but it requires some shade id, I think, more moisture in summer than it ten receives with us. Parochetus communis, hile a capital grower in very mild places, is not o reliable, and I do not expect that it will ver be really perennial, even at Monreith. is a misfortune, too, that Echinacea purpurea as not the vigour and endurance of the erennial Rudbeckias, with which it was at ne time included. I know from long experience nd observation that it is rarely a good perennial left alone without frequent propagation. It a great pity that such a fine plant should be unreliable.

I have had Polemonium confertum mellitum or five years, but lost it after that. It was rown in exceedingly poor soil, with plenty of andstone grit and sand in it, and had to be requently watered with pure water in dry eather. Cyananthus lobatus is one of the reatest beauties we have, and it, too, seems to eed thorough soakings with water in dry eather. It needs covering in winter if we want be sure of retaining it, and it is a safe ing to keep a plant or two in a frame over inter. Dicentra, or Dielytra, spectabilis is ften seen in good condition, but in a very dry il it does not appear to succeed well. Draba Petrocallis) pyrenaica is most troublesome, and believe that moraine treatment is the best for with us. Gentiana verna is a gem which I ave always found calls for some consideration. lost a very fine plant which I had had for ears and which throve well by having fine ravel and grit worked among its growth two or ree times a year. This I learned from seeing glorious plant in a garden, and cultivated in is way. My plant did not survive its removal to my present garden under the unfavourble conditions which had to be encountered. have seen many grand plants.

Sir Herbert Maxwell has acted with wise judgment in never attempting Eritrichium nanum. Many will sympathise with your correspondent in losing Fritillaria pudica and F. aurea after one season. I have been a trifle more fortunate, but the former is less stisfactory by a long way than F. aurea. I once had a planting of about a hundred bulbs of the latter, but they gradually dwindled away, although I had some flowers on the group for several years. But I think I could succeed in the same garden with a little more attention to details. But this is perhaps only a dream, though "hope springs eternal in the human breast." Sternbergia lutea is hopeless with most of us, but the variety angustifolia is more obliging in special places, and the Californian Soaproot baffles most folk.

I have already trespassed upon space too freely, but I may add that I am in general agreement with Sir Herbert regarding his Lilies. But with some of these, failure after failure may eventually be compensated for by success at last. This is, I think, specially applicable to L. Humboldtii. But who can teach Sir Herbert Maxwell anything about the queenly Lilies? *S. Arnott.*

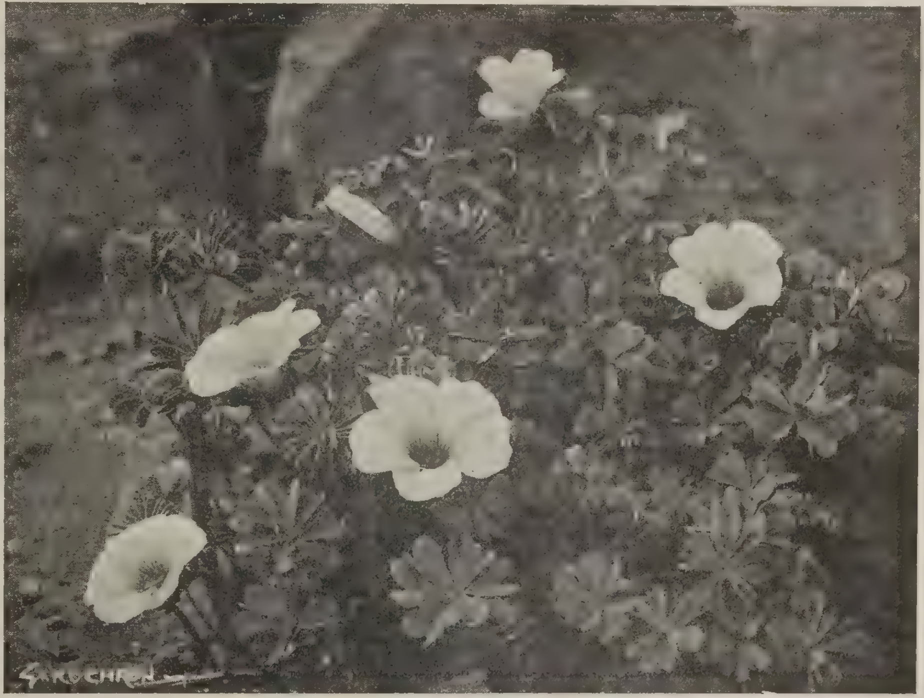

FIG. 55.—OXALIS ENNEAPHYLLA.

THE HERB GARDEN.

IN most gardens the herbs which are in demand for culinary purposes are grown in a quarter of the kitchen garden, and this quarter is a very interesting and useful one; but a herb garden proper as an adjunct to the flower garden may be made a most delightful and attractive feature, and if a position can be chosen between the kitchen garden and flower garden it would be very appropriate.

There is a fascination about herbs, for they seem to carry us back to the time when gardening was first attempted seriously in this country, and it is not too much to say that from the old herb gardens have developed the beautiful gardens of flowers, shrubs, trees, and other ornamental plants of to-day. Herbs include some of the sweetest smelling plants of the garden, and for that reason alone they are worthy of being grown.

Any ordinary garden soil suits most herbs, although, naturally, the same soil will not suit all equally well; but with a little forethought in supplying individual requirements, quite a large collection of herbs may be made to flourish in one garden.

If the site is clear of large trees, the aspect is not a matter of great importance, but it is essential that plenty of sunshine and air should reach the plants, without which they would grow feebly and much fragrance would be lacking. The shelter of an existing wall or hedge is an advantage.

The size and shape of the garden must necessarily be governed by circumstances, and these will affect the scheme of design; but, whatever the size and shape, a good plan is to enclose open sides with hedges.

The Moss Rose, the Damask Rose, Sweet Briar and Rosemary are good subjects for this purpose, and quite in keeping with the scheme. Having defined the boundary, a narrow border may be retained on the perimeter, with a 2 ft. path inside it, thus dividing the garden into a continuous, encircling border and a central block. Transverse paths in each direction may be laid through the centre, and, if space permits, further paths made in each direction at equal distances from the centre to the outside border, thus dividing the central part into sixteen beds. The paths may be laid with irregularly shaped flag-stones, the spaces between being planted with dwarf Thymes and Mentha Requienii. If broken tiles are obtainable, a much prettier path may be made by laying these on edge in diamond blocks, the long edge of one block to meet the short edge of the other. These should not be laid too closely, the intervening spaces being filled with soil for the growth of dwarf plants.

The arrangement of the herbs may be left to individual taste, but I suggest that each of the following subjects is worthy of a single bed, and might occupy the sixteen beds in the central part :—Spearmint, Peppermint, Catmint, Woolly Mint, Alecost, Balm, Horehound, Marjoram, Sage, Common Thyme, Lemon Thyme, Lavender, Hyssop, Summer Savory, Winter Savory, Tarragon. For the borders, such dwarf-growing subjects as Chives, Fumitory, Pennyroyal, Prunella, Saffron, Woodruff, Parsley and Chervil might be planted as an edge, with groups of Alkanet, Angelica, Anise, Basil, Borage, Burnet, Camomile, Caraway, Coriander, Cotton Lavender, Dill, Elecampane, Fennel, Mallow, Marigold, Purslane, Rue, Southernwood, Sweet Cicely, Valerian and Wormwood behind.

Many of these plants are annuals or biennials, and may easily be raised from seeds. The perennials may be increased by division or cuttings. It is best to divide the plants in the early autumn; but strong plants from cuttings may be set out at any time when the weather is favourable. *W. Auton, Pyrford Court Gardens.*

FRUIT REGISTER.

APPLE TOMPKIN'S KING.

THIS variety of Apple is more familiar to growers in this country under the name of King of Tompkin's County, which is the spelling adopted by Hogg in the *Fruit Manual*, and King of Tomkin's County, according to Bunyard in *A Hand-book of Hardy Fruits*. As the variety, however, originated in America, where it is known as Tompkin's King, the last is doubtless the correct name. It is also known in that country as King, and Winter King, and is widely distributed throughout the north and east of America, but is most commonly grown in the district of New York. According to Hedrick in *Cyclopedia of Hardy Fruits*, the variety originated in Warren County, New Jersey, whence about 1804 it was brought to Tompkin's County, New York, and given its name of Tompkin's King, our name of King of Tompkin's County being doubtless derived from this fact. Gardeners in this country will probably continue to grow it under its synonym of King of Tompkin's County, but whatever name it is grown under does not affect the fact of it being one of our best late dessert Apples, for it is in season so late as May.

Mr. George Carpenter, of West Hall Gardens, Byfleet, has sent us a splendid sample of this Apple and states that in West Hall Gardens the tree is a strong grower and heavy cropper, and it is especially suitable for training as standards, but is not such a success when grown in bush form. Mr. Carpenter considers the flavour to approach that of Cox's Orange Pippin, and although it is not so excellent in quality as that sort, it is certainly one of the best late dessert Apples available from January to May. In America the tree is found to lack hardiness, healthiness, longevity and productiveness, but the behaviour of varieties in that country and in this differs considerably, for whilst we are unable to succeed with some of the best American Apples, the same is true there with some of our choicest varieties. This, doubtless, arises from the suitability of the respective varieties to certain climatical conditions, which may be favourable in the one country and the reverse in the other. Those planting Apples this spring may be recommended to include a tree or two of this showy and high quality variety that seems to be especially suited to the lighter soils, and which Mr. Bunyard, in *The Hand-book of Hardy Fruits*, says he has seen equal to American samples when grown on a sandstone soil.

HORTICULTURE AT THE BRITISH EMPIRE EXHIBITION.

I HAVE the pleasure to inform you of the preliminary arrangements accepted by the Management of the Exhibition upon the recommendation of the Horticultural Committee.

The Committee have formulated proposals which include the provision of a large and suitable site of nearly ten acres (indicated on the plan contained in the accompanying booklet) immediately adjoining the new Great Central Railway Station, and between the station and the model stock farm. They regard as very satisfactory the terms agreed by the management, who have approved the provisional plans for the arrangement of outdoor exhibits prepared by Mr. Edward White, of Messrs. Milner, Son and White, consulting landscape gardeners to the Exhibition, in order to give an approximate idea of the general lay-out proposed.

Applications for space from trade exhibitors will be considered in the light of the suitability and attractiveness of the proposed exhibits, and in view of the period of the Exhibition (end of April until end of October, 1924) preference will be given to exhibits which will be maintained in an attractive form for the longest time possible.

I ask your careful attention to the various facilities offered, as follow:—

(a) The large area adjoining the station will be available for flower gardens, formal gardens (with or without such features as statues, vases, fountains, pergolas, topiary work, garden houses, etc.), rock gardens and other ornamental gardens with special plant or shrub treatment. A charge of four shillings per foot run of frontage of these sites will be made to exhibitors to cover the cost of water supply, path-making, etc.

(b) In various prominent position throughout the Exhibition grounds opportunity will be given to nurserymen to co-operate with the management in furnishing and maintaining beds and borders with shrubs and flowers, in accordance with plans to be prepared by Mr. White and approved by the management—these spaces will be allotted preferentially to those firms who apply for space under (a).

(c) Sites for horticultural buildings, greenhouses, kiosks, groups of garden ornaments, etc., will be available on the main curved avenue in the horticultural section. The depths of sites will be approximately 50 feet, and the charge per foot of frontage will be £5. The design of such buildings, kiosks, etc., will be subject to approval by the architects of the Exhibition.

(d) A hall for horticultural and agricultural exhibits (machinery, seeds, fertilisers, and sundries), including small spaces for offices for firms whose exhibits are only or mainly outdoors, will be built on the avenue dividing the group of gardens from the model farm. Space will be charged for at the rate of £1 per superficial foot, subject to additions for extra frontages and to discounts as set out in the general regulations attached to the form of application. There will also be a Garden Exhibitors' Clubroom, for outdoor exhibitors who do not desire a separate office, the charge for membership, including use of private locker and writing desk, being £20 for the period of the Exhibition.

The allotment of sites under (a) and (b) will be made by an expert sub-committee, who will proceed to deal with applications as soon as a sufficient number has been received.

Allotments under (c) and (d) will be made by the management as soon thereafter as possible.

Arrangements for large periodical exhibitions are under consideration, and it is expected that these will be in every way worthy, both of the Exhibition and of the horticulture of the United Kingdom.

I am to ask you, if you intend to exhibit, to fill up and return in duplicate at your earliest convenience, in any event not later than February 28, the enclosed forms, on which you may make application for space according to the four methods of exhibiting described above under (a), (b), (c) and (d). The management will be pleased to assist you with any further information at their disposal, if you will address your inquiries to the Secretary of the Committee at the above address.

The Committee earnestly hope that all who are interested in gardens will assist in the effort to make British horticulture a great feature at an exhibition which will do much to restore the prosperity of Imperial industry. *W. Cuthbertson, Chairman, Horticultural Committee.*

[The foregoing letter, which we received last Monday, is, we assume, sent by way of reply to our observations (on p. 85) regarding the absence of information on the position and prospects of horticultural affairs at the British Empire Exhibition at Wembley, in 1924.—EDS.]

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Bourdichon's Figures of Black Currants.—It is noteworthy that the Black Currants illustrated on p. 92, are named respectively, in the English equivalent, "Pepper plant or Flowers of Pepper," and the one in fruit, "Pepper or round Pepper." Are there any data to show that the fruit was ever used as a substitute for Pepper? I think not. Seventy years after the date given for the painting, Lyte, in a long note "Of Pepper," remarks that the "Pepper cornes or berries [hang] even like the Ribes or beyondped Gooseberries (black currants), as y may see in this countrie; for Pepper is brough fro the Indians to Antwarp preserved in con fiture, with the stems and foot stalkes hangin on it.'' So that the painter may have associate these preserved fruits of Pepper with the wil fruit of his native country, and given it th name of Long Pepper accordingly for lack o a vernacular name. *R. P. Brotherston.*

"**To Chortle.**"—I suppose that, in using thi expressive verb, I ought to have placed i between inverted commas. *C. H. P.* will no find it in the Oxford or any othe English dictionary, forasmuch as it i one of many quaint vocables coined b that remarkable genius, Charles Lutwidg Dodgson, better known by his literar pseudonym, Lewis Carroll. The word i question occurs in the ballad of "Jabberwocky," in *Through the Looking-glass* (1871):

> "And hast thou slain the Jabberwock?
> Come to my arms, my beamish boy!
> O frabjous day! Callooh! Callay!"
> He chortled in his joy.

I have termed Dodgson a remarkable geniu and so, indeed, he was in his peculiar way, fo *Alice in Wonderland* and *Through the Looking glass*, are secure in their niche as Englis classics; but Dodgson betrayed no discernibl symptom of genius in the early days, when, a an undergraduate, I attended his mathematica lectures at Christ Church, Oxford. *Herber Maxwell.*

——Where *has C. H. P.* looked for thi expression? I find it given in Burrer and Leland's *Dictionary of Slang, Jargon an Cant*, as equivalent to "to howl (popular)." In the *Standard Dictionary*, by Funk an Wagnall, Lewis Carroll is credited with th invention of it as a portmanteau word fro "Chuckle" and "Snort," with the meaning to chuckle or make loud noises to express joy and the quotation: "He chortled in his joy," is given from *Through the Looking-glass* (Th Jabberwocky) in illustration. *C. N.*

[Dr. Stansfield, Mr. George Yeld, Mr. C. E Pearson, Mr. J. W. Drummond, and Mr. W Cuthbertson have also written drawing attentio to Lewis Carroll's use of the verb "chortle" i its past tense.—EDS.]

Mrs. Loudon.—Thanks are due to Mr. Britte (p. 77) for supplying the date of Mrs. Loudon' birth and pointing out two mistakes in th article published in the issue of December 23 1922. "Wells" for "Webb" is obviousl due to the difficulty of reading my handwriting How the other mistake occurred I cannot hazar an opinion upon. But in the sentence "I 1840 she produced *The Lady's Flower Garden*,' that title should read *Gardening for Ladie* and the next sentence, "In the same ye *Gardening for Ladies*" should be deleted, an the rest of the sentence follow the terminatio of that preceding, when it will read, "In 184 she produced *Gardening for Ladies*, ostensibl to afford increased information to those wh found the volumes just mentioned to be to meagre for their requirements. It is an 8v of 406 pages, and was sold on the day o publication to the number of 1,350, and u to 1851 as many as eight editions had bee asked for." This explanation will remove Mr Britten's difficulty. Some of the other note by Mr. Britten are most interesting, and, indeed, we cannot have too many additional fact relating to such extremely interesting people a Mrs. Loudon and her husband, concerning whom I contributed an article about eighteen month ago, chiefly in relation to his connection wit *The Gardeners' Magazine*, in which are som remarks repeated by Mr. Britten. Though Mr Britten takes exception to Mrs. Loudon' memoir of her husband being designate "brief," I still think that term to be correct for it extends to only an incomplete forty 8v pages, most interesting so far as it goes, bu leaving much to be inferred. Concerning thei mutual tour through the West and North o England and through part of Scotland, Mr Britten assumes that tour to have been on of hymeneal import. We possess no data fo that assumption, and as the wedding took place on September 14 of one year, and the commencement of the tour on April 24 in that succeeding it, to say the least, seems to strain what we know from the accounts of both parties to have been merely a business journey mixed with pleasure, to one of a nature never referred to by either. In Vols. VII., VIII., and IX. of *The Gardeners' Magazine*, a detailed account of the journey in question is given by Loudon himself, as was his custom under similar circumstances earlier and later in his career. All the dozens of gardens, estates, nurseries, etc., visited are named, and many described, either with approbation or otherwise, for he described the bad management of a ducal establishment with the same sincerity of purpose that is apparent in applauding the high cultivation of the smallest garden visited. While delighted with the perfect palace of Lord Grosvenor, he could find no words strong enough to condemn the condition of huts of the peasantry he inspected—"Not fit for dogs or pigs to live in." In one part of England he found farmers so lethargic that they still employed six horses to drag a plough at two miles an hour, while otherwhere farming was being pursued with the latest improvements. Nothing escaped his keen eye, and the remarks elicited prove him to have been a very long number of years ahead of his day and generation. The tour terminated suddenly in September, on news reaching him of the illness of his mother, who, with his sisters, was domiciled with him at Bayswater, not at Edinburgh, as Mr. Britten states. It may be not amiss to add that Mrs. Loudon reprints at the end of the memoir a series of anecdotes relating to her husband which appeared originally in the *Derby Reporter*. These all go to the enhancement of our respect for the high character of the man whose wife was in every way worthy of him.—*R. P. Brotherston.*

Cucumbers and Onions.—Your correspondents *P.* and *H.*, p. 54, January 27, are surely more than humorous. *P.* suggests 700° for germinating Cucumbers! And *H.* suggests as "much wood ash as can be procured." . . . "All rough stones and rubbish should be removed . . . raked perfectly level." I doubt if any gardener would successfully follow this advice. Stones are as necessary in most soils as any other ingredients of the land. Remove all stones from the soil, and it becomes unworkable, also unhealthy for growing crops. *Harry Williams, Redruth.*

[The 700° is a printer's error, and cannot be attributed to our correspondent. It is obviously intended for 70°.—Eds.]

Germination.—The article in your issue of February 3rd, entitled "The Spring Awakening of Arable Land," is one of the most suggestive I have read for a long time. It recalled to my mind a successful trial which I saw carried out by Mr. Alexander Malcolm, Duns, three or four years ago. He had some difficulty in getting a lot of valuable Sweet Pea seed of low vitality to germinate in ordinary soil. He tried them in pots of fine, sea-side, shell gravel and had striking results. Not only did the seeds all germinate, but the roots revelled in the gritty, saline material, and when potted on in the ordinary course never "looked over their shoulder." *W. Cuthbertson, Duddingston, N.B.*

Grafting Vines.—I would advise your correspondent *H. L.* to bud-graft his Vine in preference to bottle-grafting. It is far easier and quicker to perform, and there are no corresponding edges to cut to fit. Take a dormant shoot, make an oblique cut opposite to, and a little above, the eye selected, coming out about two inches below the eye. Then make a cut just above the eye, severing it from the rest of the shoot. The result will be a wedge-shaped scion with the eye at the thicker end. Next make a T-shaped incision in the bark of the Vine to be used as the stock, exactly as in budding Roses, at the exact spot where the young cane is to commence. Raise the bark and insert the graft, tie in securely with thread or fine twine, cover the incision with grafting-wax, and the operation will be completed. The time for doing this is when the Vine is in flower. *H. L.* would find the bark of the old Vine rather thick, but it would lift easily at the time stated. An eye inserted in this manner will make several inches of growth in less than a month, and the bunches it produces should be removed. In all grafting operations I always remove a slight layer of the outer bark from the scion, exposing the cambium layer and allowing the same to come in contact with the growing tissue in the overlapping bark of the stock. *J. Pitts, Pett Place, Charing, Kent.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, February 1.—*Present:* The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, Coningsby, D. A. Cowan, J. Cypher, A. G. Ellwood, J. Evans, W. Giles, A. Hanmer, J. Howes, J. Jackson, A. Keeling, J. Lupton, D. McLeod, E. W. Thompson, and H. Arthur (secretary).

First-Class Certificates.

Cypripedium Forest King (*Desdemona* × *Beekmanii*), a large flower of good form, intermediate between the two parents; and *Cypripedium J. M. Black var. Samson* (*Beryl* × *Eurybiadēs*), with broad sepals and large, well spotted dorsal sepal. From H. T. Pitt, Esq.

Oncidium splendidum holoxanthum, a pure yellow variety of the type. From B. J. Beckton, Esq.

Cypripedium Londinum (*parentage unknown*), from the Rev. J. Crombleholme.

Laelio-Cattleya Schröderae var. Imperator. The sepals and petals are pure white, the lip and tube deep crimson. From S. Gratrix, Esq.

Cymbidium Arthur (*glebelandense* × *rosefieldense*), a distinct new hybrid with green sepals and petals and a prettily marked lip. From the Hon. Robert James.

Laelio-Cattleya Eunice magnifica (*C. chocoensis alba* × *L. anceps alba*), from D. Losh Thorpe, Esq.

Cattleya Tityus var. Ada Evans (*Enid superba* × *C. Octave Doin*), a variety with large flowers of fine colour, and exceedingly dark lip. From Mr. J. Evans.

Awards of Merit.

Odontioda Cordor (*Odta. coronation* × *Odm. Doris*); *Odontoglossum Amazon* (*crispum* × *mirum*); *Cattleya Enid alba magnifica*, from S. Gratrix, Esq.

Cypripedium Desdemona var. Radiant; *C. Thais Gratrixiae*, from Mrs. Gratrix.

Cypripedium General Degoutte (*Earl of Tankerville* × *Mrs. F. W. Ashton*), and *Odontoglossum Odyssey* (*parentage unknown*), from A. Hanmer, Esq.

Calanthe Rosabelle (*Wm. Murray* × *George*), from B. J. Beckton, Esq.

Cymbidium Schlegelii var. Serena, from the Hon. Robert James.

Groups.

S. Gratrix, Esq., West Point (gr. Mr. J. Howes), staged a group for which a Gold Medal was awarded.

A. Hanmer, Esq., Buxton (gr. Mr. G. Giles), was awarded a large Silver Medal for a group.

A. T. Cussons, Esq., Prestwich (gr. Mr F. Cookson), staged a group for which a large Silver Medal was awarded.

Messrs. J. Cypher and Sons, Cheltenham, also received a large Silver Medal for a group.

B. J. Beckton, Esq, Irlams-o'-the-Height (gr. Mr. W. A. Stewart), staged a miscellaneous group, for which a Silver Medal was awarded.

ROYAL HORTICULTURAL.

Trial of Leeks.

The following awards have been made by the Council of the Royal Horticultural Society to Leeks after trial at Wisley.

First-Class Certificates.

4, *Royal Favourite*, purchased from Messrs. Sutton and Sons; 25, *Goliath*, sent by Messrs. Stuart and Mein.

Awards of Merit.

28, *The Lyon*, sent by Messrs. Stuart and Mein.

Highly Commended.

9, Carentan, sent by Messrs. J. Carter and Co.; 14, Monstrous Carentan (see also No. 12), sent by Mr. Holmes; 21, Champion, sent by Messrs. Nutting and Sons, Ltd.; 33, The Lyon, sent by Messrs. Hurst and Son; 42, Monarch (Renton's) (see also No. 45-48), sent by Messrs. Watkins and Simpson; 54, Musselburgh No. 2, sent by Messrs. Hurst and Son.

Commended.

2, Leicester Hero, sent by Messrs. Harrison and Sons; 8, Large Rouen, sent by Messrs. Toogood and Son, Ltd.; 12, Carentan, sent by Messrs. Nutting and Sons, Ltd.; 22, Sent as Champion (Dobbie), but it is of Musselburgh type, sent by Messrs. Barr and Sons; 27, Emperor, sent by Messrs. Barr and Sons; 45, 46, 47, Monarch (Renton's) No. 2, sent by Messrs. Hurst and Son, R. Veitch and Son, and Barr and Sons; 48, Musselburgh, sent by Messrs. J. Kelway and Son.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this Society was held in the R.H.S. Hall on Monday, February 12, Mr. Chas. H. Curtis presiding. The Chairman reported the death of the Treasurer, the late Mr. Thomas Winter, and votes of sympathy to the widow and daughter were passed in silence.

Mr. Arthur Bedford, being appointed Treasurer, resigned his position as Committeeman and Vice-Chairman, and Mr. W. H. Divers was elected Vice-Chairman *pro tem.* in his place.

Seven new members were elected. The sum of £106 11s. 11d. was passed for payment to four members from their deposit accounts, and the sum of £65 17s. 5d. was paid to the nominees of two deceased members. The sick pay for the month amounted to £97 16s. 6d. on the private side, and to £78 13s. 2d. on the State side; maternity benefits came to £4. A grant of £2 15s. was made to one member for dental treatment, and six further claims were considered. The sum of 30s. was granted to one member from the Convalescent Fund, and £500 was voted for investment on the State section.

Final arrangements were also made for the annual meeting on March 12, at which Mr. Chas. H. Curtis will preside; members are urged to attend that evening.

ROYAL SCOTTISH ARBORICULTURAL.

February 7.—The annual business meeting of this Society was held at 5, St. Andrew's Square, Edinburgh, on this date, the Duke of Atholl, K.T., president, in the chair. The membership, it was reported, was 1,724, the same figure as that for the previous year. The Council recommended that the excursion this year be to Sherwood Forest, and this was agreed to, the time to be the beginning of July.

Mr. John D. Sutherland, C.B.E., F.S.I., Assistant Forestry Commissioner for Scotland, gave an address on forestry, entitled "An Industrial Opportunity." He referred to the steps taken by the Government to inaugurate works for the benefit of the unemployed, and he thought the present time opportune to begin anew by assisting the cultivator with an outlet for his full productive capacity, and to the necessity for a national policy sufficiently comprehensive and elastic to be adapted to the requirements of the various parts of the country. There was not enough good agricultural land to go round. It was not enough to establish land settlements unless the occupiers were placed in a position to pay their rents, and to enable them to make good it was necessary to follow the process further by developing industries to which they could lend their full productive energies. The best source of development was afforestation, but commercial afforestation alone must be the object. He estimated that each thousand acres afforested would give employment over a period of sixty or seventy years to the value of £90,000 to £100,000, and this only included the utilisation of the crop down to the stage at which it left the saw-mills. He suggested a limited contribution in money to planters, on prescribed conditions. If the present temporary unemployment grant of £3 per acre planted were continued permanently, a plantation of 1,000 acres would cost the State only £3,000, and there would be a cent. per cent. expenditure by the planter, all of which practically passed to labour. The sum required in this country to assure the making of forests by the method suggested need not exceed, say, £90,000 annually, which would fix an annual planting of 30,000 acres, and an expenditure on labour of £27,000,000 within sixty or seventy years. Could any other known encouragement to rural industry show anything approaching this result?

The Duke of Atholl, who was accorded a vote of thanks for presiding, was re-elected president, and the following were elected to the vacancies caused by retirals by rotation—vice-president, Mr. John Broom, Bathgate; Councillors, the Earl of Stair, Sir Hugh Shaw Stewart, Bart., and Messrs. J. D. Sutherland, G. U. Macdonald and A. Morgan.

Obituary.

Samuel Parsons.—The American newspapers record the death of Mr. Samuel Parsons, a prominent landscape gardener, of New York, in his 78th year. In the early seventies he joined the firm of Calvert Vaux, and under them Mr. Parsons held the office of superintendent of the planting of the Central Park, New York, and for the greater part of his life was actively associated with that public park. In 1905 he was appointed Park Commissioner in succession to Commissioner Dallas. He laid out many large parks in America, including one of 1,400 acres at San Diego, California. He was also the author of several books on landscape gardening. Since 1916, he has been head of the firm of Samuel Parsons, 101, Park Avenue, New York.

TRADE NOTES.

The Chamber of Horticulture has for the past several weeks had under consideration the question of freight charges in the Spalding and Wisbech areas for the cut flower traffic. A strong case, stating the position of matters in great detail, has now been completed by Mr. Seymour Cobley, and the Railway Clearing House authorities have been asked to receive a deputation of two growers from each district for the purpose of hearing the numerous arguments. In view of the probability of an early commencement of the outdoor flower season, it is hoped the deputation will be received shortly.

The main points of the case deal with the development of this branch of the industry in the locality concerned during the past 30 years. In early days, with but a small number of growers sending a few boxes daily, the owner's risk rate, or slightly reduced station to station rate, was considered reasonable; but there are now more than 80 growers in the district sending by the van load, and the boxes consigned in one day exceed those sent previously during the whole year, while the basis of the rates remains unchanged. This local industry has not yet recovered its pre-war level, but it is calculated that reasonable railway facilities will not only allow this to be done, but even increase it beyond former dimensions.

In 1922 the flower traffic from Spalding alone was over 1,500 tons; on one day 25 van loads (80 tons) left the station, and during the busiest months 10 to 15 van loads left daily for London and the large towns. The original rate (plus 50 per cent.), is still in force, and no advantage is given over a total weight of 56 lb., although the daily weight consigned is often two thousand times as much. Offers from a motor transport company prepared to handle the whole of the London traffic have been received. Facts and figures showing the fall in prices and cost of production, together with comparison charges on other goods, will be laid before the railway authorities, who are asked to provide a sliding scale rate for this cut flower traffic. The undermentioned scale is suggested as fair and reasonable to all parties: Up to 56 lb., present rate; 56 lb. to 1 cwt., 25 per cent. off existing rates; 1 cwt. to 5 cwt., 30 per cent. off existing rates; 5 cwt. to 10 cwt., 40 per cent. off existing rates; 10 cwt. to 1 ton, 50 per cent. off existing rates. The result of these negotiations will be published in due course.

An important item in the production of flowers and vegetables is the use of a suitable and reliable fertiliser. Under the title of Abunda the Stonehouse Works Co., of West Bromwich, are offering a good fertiliser in cartons or bags in quantities suitable for small as well as large gardens.

As we hear that certain Dutch firms are again flooding this country with their gaily got-up catalogues, we think the following letter, which we last summer received from a customer, may interest your readers:—" I should like to thank you for the way in which you executed my small orders for rock plants last autumn. My garden is now full of colour, and I am more than satisfied. The plants came so well packed and grown that I do not think I have lost one. I had some of the same kinds of plants at the same time from a Dutch firm, and though yours were certainly about double the price, they are ten times the value."

The opinion expressed by our customer is by no means exceptional, and it is really where the Britisher scores every time over the Dutchman by giving his customer a better article and better service than he ever gets from Holland. For obvious reasons we should prefer that you do not publish our name, as we have no desire for a gratuitous advertisement. *London Seedsman.*

THE WEATHER.

THE WEATHER IN JANUARY.

This was one of the most persistently " westerly " Januaries during the fifty-two years' observations. It was also one of the mildest and most equable of those months. Wind velocity was considerable, but steady, rarely attaining gale-force; and, indeed, after the 11th, barometric pressure was unusually high. The air was very humid, but the normal rainfall was not reached. There was an exceptional abundance of ozone, and a slight excess of sunshine. The mean temperature was 43°, or so much as 4¼° above the Southport average. There were nearly 46 hours of sunshine, or two more than the normal number. Rain fell on 21 days, or four more than usual; but the total quantity was only 2.34 inches, or 0.29 inch below the average. There was no evaporation. The ground water-level was nearly normal. Gales were restricted to the 9th, 10th and 20th, and only developed any strength on the 10th. Thunder did not occur. Hail fell on four dates, but there was no trace of snow. Ground-frost was registered on 6 nights only, but nothing froze in the shade. Glazed-frost formed on exposed roads on the morning of the 13th. *Joseph Baxendell, The Fernley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

Two slight falls of snow have been the only visible indications of a winter that has two-thirds gone, while a feeling of springtime in what should be the coldest month of the year has awakened the dormant activities of plants. The mean temperature for January was almost 2° above that of a normal March, the number of hours of sunshine was high and the rainfall little more than half that of an average first month of the year—a happy combination of weather ameliorating factors. Rain fell on 15 days—the first nine days contributing 8, and yielded a total of 1.69 inch, the wettest day being the 5th, with a fall of 0.38 inch. Bright sunshine was registered to an aggregate of 66.3 hours, giving a daily average of 2.14 hours and a percentage of 29; there were 8 sunless days. Barometric pressure, with a mean of 29.13 inches, varied between a highest of 30.45 inches on the 18th and a lowest of 29.03 inches on the 10th. The mean temperature for the month was 41.5°, against a normal of 37.3°, with a mean maximum of 47° and a mean minimum of 36°. The highest maximum, 53°, was recorded for three days—the 21st, 26th and 31st—and the lowest minimum of 30° also for three days—the 1st, 2nd and 13th. On four nights the temperature fell below the freezing-point, but as the lowest maximum was 32°, we were far from having even one day of continuous frost. On the grass, the mean temperature (minimum) was 33°, with a lowest of 26° on the 1st and 2nd; there were ten nights of ground frost. At 1 ft. deep the soil temperature fell from 38° to 36°, and then rose to 41°. On five days the wind was northerly, but during the greater part of the month westerly or southerly winds prevailed. *John Davidson, Meteorological Station of the St. Andrew's Provincial Committee, Training College Gardens, Mayfield, Dundee.*

ANSWERS TO CORRESPONDENTS.

Hanbury's Gardening, 1769: *W. B.* If by the above meagre title you mean *A Complete Body of Planting and Gardening . . . with practical directions for raising and improving woods . . . instructions for laying out . . . pleasure and flower gardens, etc.,* we cannot find an edition for 1769 recorded. There is one in folio, two vols., 1770-71, with 22 plates. Johnson considers it was commenced in December, 1769, and completed in 150 sixpenny weekly numbers in 1773. This work does not often appear on the market, and we can find only one reference to it in recent years. A well-known West End firm of second-hand booksellers offered a copy of it for £1 10s. in February, 1920. This evidently contained 38 plates of garden flowers, the date being given as 1771.

Lawn Mower: *D. M.* A 10-inch lawn mower is large enough for a lady gardener to use alone for any considerable length of time. With the assistance of a boy, a 14-inch or 16-inch would be found suitable. Much, however, depends on the age of the boy, the lawn and the amount of grass it produces.

Lily Leaves: *A. O'L.* The damage is not due to fungous disease; the trouble is caused by scorching, and may be due to scalding by sunshine, or the use of some specific at too great a strength.

Names of Plants: *H. M.* 1, Lonicera Standishii; 2, Luculia gratissima; 3, Cobaea scandens; 4, Trachelospermum jasminoides; 5, Cotoneaster frigida; 6, Prunus cerasifera atropurpurea (syn. Pissardii); 7, Prunus Mume. *E. B.* Cornus Mas. *J. B. Mon,* (1) Euonymus radicans var. variegatus; (2) Cupressus pisifera var. plumosa aurea; (3) Pseudotsuga Douglasii; (4) Abies nobilis; (5) Picea pungens var. glauca; (6) Cedrus atlantica var. glauca; (7) Tsuga canadensis. *J. F. D.* Mesembryanthemum conspicuum. *H. E. B.* (1) Ornithogalum longibracteatum; (2) Liriope striata; (3) Tradescantia virginica.

Narcissus ornatus: *C. M.* The bulbs are attacked by the fungus Botrytis.

Rash Caused by Handling Primulas: *R. C.* No similar case of skin poisoning, caused by any of the Primulas you mention, P. sinensis, P. stellata and P. malacoides, has come to our notice before, although eczema caused by P. obconica is quite common. The susceptibility of a person to skin poisoning of this nature depends on the sensitiveness of the skin-nerve terminations. These vary in different individuals, and whilst many are readily affected by such plants as Primula obconica and Rhus Toxicodendron, others are able to handle them with impunity.

" Red Spider " on Cucumbers: *C. C.* What you take for Red Spider apparently attacking your Cucumber leaves are the nymphs of a mite called Gamasus coleoptratorum. These mites are entirely carnivorous, and do no damage to the plants; therefore, they need not be feared.

Reinforced Concrete for Glasshouse Construction: *J. E.* Much depends on what you wish to grow in the houses. Reinforced concrete might be used with advantage for sills and uprights, but it would be unwise to use it for the rafters; wood would be drip-proof, warmer, lighter and much more serviceable, and last as long as the concrete. Ventilation would be more easily arranged in woodwork, and extremes of heat and cold would not have the same effect on wood as on concrete, nor would there be such sharp reactions on the temperature of the house.

Seed Growing: *R. H. A.* The only book dealing with this subject with which we are acquainted is *Seed Farming in Britain,* by A. J. Macself. This may be obtained from the Hortus Printing Co., Burnley, price 2s. 6d. net.

Communications Received.—F. D.—E. B.—J. R. C.—P. P.—W. T. P.—G. L.—J. P., Sweden—W. H. W.—A. B

THE
Gardeners' Chronicle
No. 1888.—*SATURDAY, MARCH* 3, 1923.

CONTENTS.

Books, notices of—
  Fruit Foes 117
  Journal of the R.H.S. Gardens Club .. 113
  The Apple Tree .. 117
Canada, encouragement for horticulture in .. 115
Cirsium eriophorum .. 123
Cultural memorandum—
  Propagating Begonia Gloire de Lorraine from leaves .. 118
Flowers in season .. 114
"Gardeners' Chronicle" seventy-five years ago 115
Glasnevin, notes from .. 121
"Gordon's Gardening" 120
Heaths, hardy 123
Hardy flower border—
  Lychnis chalcedonica 122
  Pulmonaria angustifolia azurea .. 122
Horticultural exhibition at Gothenburg .. 114
Horticultural societies, local 114
Indoor plants—
  Solanum hybridum .. 115
Obituary—
  Martin, R. F. .. 126
  Waters, A. 126
Orchid notes and gleanings—
  Odontioda Red Dragon 118
Paris Spring Show .. 114
Parks and gardens, public 118
Perennial carpeting plants 118
Pettigrew, Mr. A. A. .. 114
Plants, failures with .. 123
Plants in the Antipodes, northern 120
Potatos, wart disease of 114
Scotland, northern, as a forest area 115
Societies—
  Association of Economic Biologists .. 126
  Manchester and North of England Orchid 124
  Reading and District Gardeners' 124
  Royal Horticultural .. 124
Timber, Canadian .. 114
Vegetable garden—
  Asparagus 123
  Forcing Cauliflowers .. 123
Week's work, the .. 116
Wisley, notes from .. 121

ILLUSTRATIONS.

Pettigrew, Mr. A. A., portrait of 114
Primula Inayatii in the rock garden at Glasnevin .. 121
Pulmonaria angustifolia azurea 122
Roath Park, Cardiff: group of succulent plants in the conservatory, 115; lake embankment with formal beds, 117; students' garden in 119

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 40.1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office. 5, Tavistock Street, Covent Garden, London, Wednesday, February 28, 10 a.m. Bar. 29.4; temp., 51°. Weather—Dull.

British Sylviculture.

Everyone who is concerned with British sylviculture will find matter of much interest in Mr. Duchesne's lectures* which are published in the July number of the *Journal of Forestry* of last year. Mr. Duchesne estimates that ninety per cent. of the timber used in this country is of foreign origin. The magnitude of importation may be judged from the fact that in 1920 timber imports were of the value of eighty-two million pounds sterling. It follows naturally that prices and demand for home-grown timber must be determined by prices and supplies of imported timber; and therefore that only very sound judgment in planting is likely to lead to remunerative results. Many factors have conspired to render timber production precarious in this country. The Navy no longer requires Oak, which was, in the days of wooden ships, the mainstay of the British forest. The railway has ousted wood from its previously pre-eminent position as a fuel. Hence the once profitable coppice is apt to be no longer profitable. Rural industries—those of the wheelwright, for example—are less widespread now than formerly, and hence local demand for wood is more restricted. Few people now use charcoal for burning for domestic use. Hence improved transport and the centralisation of industry handicap owners of woodland unless their woods happen to lie in the neighbourhood of special industries. The general unremunerativeness of woodland is not, however, due solely to declining and precarious demand; it is also in part due in not a few cases to the fact that the methods adopted have not always changed swiftly enough with the new and more difficult conditions. As an example, Mr. Duchesne cites the case of woodlands containing so many as seventeen different species of trees. To expect hardwoods, such as Oak and Beech, to grow in association with Larch and Douglas Fir is to ensure failure. On the subject of mode of planting, Mr. Duchesne is emphatic. He holds that most Conifers, with the possible exception of Larch, should be planted pure. Timber, like that of Spruce and Douglas Fir, is wanted without knots, and to ensure the supply of such timber mixed planting must be avoided. Of specially objectionable mixtures, Mr. Duchesne cites that of Scots Pine and Larch—the former needs to be grown close, the latter open, and therefore they cannot be mixed. With hardwoods, the case is somewhat different. Ash, for example, which has a higher value when young and has an open canopy, does better when grown with a shade-bearer, and a mixture recommended is Ash, European Larch, and Spanish Chestnut or Beech. Larch will draw the Ash and such drawn trees are said to produce the best timber. Again, Oak and Beech is a good mixture—Beech, indeed, being known to Continental foresters as the mother of the forest. With the former mixture there will be Ash poles and Larch thinnings saleable at an early age, and there is the Chestnut or Beech to conserve the soil; moreover, either Ash or Chestnut may, if it be profitable, be coppiced. Like Ash, Spanish Chestnut is in demand—the latter for furniture making—Spanish Chestnut being the material used in much "Oak" furniture. Larch is valuable, particularly when grown within range of coalfields, and there is also a demand for large Larch—so that the growers have alternatives which may enable them to make profits. Mr. Duchesne regards Douglas Fir as a most promising tree and one which should be grown on a large scale, for example, in the West of Scotland, where the rainfall is high. It will not, however, do on a chalky soil—as soon as its roots get down to chalk the leaves turn yellow and the tree dies. Douglas Fir grows well in Devonshire and in the Lake District. Spruce for high land, Douglas Fir for valleys is Mr. Duchesne's dictum. The pulp of the former enters into the composition of paper, and the timber yields "white deal." For exposed positions the Corsican Pine, which withstands gales, is to be commended—a tree for the poorest of lands. Other trees which may pay are Poplar and Willow—the former the fastest growing tree in this country. Both need plenty of room; they cannot have too much. Mr. Duchesne recommends that Ash, Spanish Chestnut and Oak should be cut down within an inch of the ground one or two years after planting, in order to encourage them to throw up a more vigorous shoot.

Our Coloured Plate.—With this issue we present our readers with a coloured supplementary illustration. This illustration represents one of the finest of hybrid Nepenthes—N. mixta, which is the result of crossing N. Northiana with N. Curtisii. The two parent species were discovered in Borneo many years ago by Mr. C. Curtis, when collecting for Messrs. Jas. Veitch and Sons, Chelsea. The hybrid is brilliantly coloured with crimson and scarlet on a green ground, and the wide, frilled rim to the mouth of the pitcher has an exquisitely polished appearance. It is a pity that Nepenthes have gone so largely out of cultivation, but at Kew and other botanic gardens there are representative collections of this wonderful genus of insectivorous plants, and, no doubt, as taxation declines and prosperity arrives, they will be grown again in many private gardens.

Peat Composts.—The value of peat in the preparing of composts is dealt with by Professor A. P. Dachnowski in *Departmental Circular* No. 252 of the United States Department of Agriculture. Peat in its natural condition is of little value as a fertiliser, and the chemically treated peat and bacterised peat put on the market have not proved very satisfactory. Prof. Dachnowski, however, advocates its use in the making of composts. It has power not only of absorbing and retaining water, but also ammonia. Peat supplies the soil with organic matter, which is not only of value in improving the physical properties of the soil and rendering the latter warmer and drier in winter and more retentive of moisture in summer, but is a source of energy to bacteria, which fix the atmospheric nitrogen. Its acidity assists materially in the decomposition of mineral salts and fertilisers, and with moderate applications of lime from time to time, the danger from sourness is obviated and the soil rendered suitable to beneficial soil organisms. The more fibrous peats need to be air dried and shredded, or else subjected to disintegration by the action of frost, for freezing breaks up the fibres, makes them softer and more elastic and generally reduces the peat to a more favourable condition. One of the best composts of peat is made by mixing it with stable manure, the proportions being sometimes one of each, or two parts peat and one of manure, or three parts peat to one of the dung. It is useful also to supplement the composts with clay, sod-loam, or mineral-fertiliser ingredients, notably ground rock phosphate or potash, in varying proportions, as may be required. The heap may be 6 feet to 8 feet wide and indefinitely long. Composts with coarse fibrous peat should remain in a compact pile out of doors for at least six months. They should be located in a shady, cool, well-ventilated place, kept in a fairly moist condition, and should be shovelled or forked over at least twice before use. Weed seeds carried by the manure in the compost pile will be killed by the increasing heat, which results mainly from the action of moulds and bacteria. If the pile gets too hot in summer, it should be turned over, and in doing this a little more of the fibrous peat should be added. Peat used in this manner in concentration camps for horses, cattle, poultry, and other live stock becomes transformed into a rich black manure and should make a valuable organic fertiliser. The possibilities of the use of peat as a deodorising absorbent and for conserving the fertiliser value of night soil have been recognised in several European countries, notably in Sweden. Observations of tests extending over a number of years, weighed in connection with the results of the practice from the point of view of profitable returns, have convinced many that sewage composts have not received the attention they deserve.

Journal of the R.H.S. Gardens Club.—The issue for 1922, forming No. 15 of this series, contains matter on a variety of subjects especially interesting to the past and present members of the Club, as well as to those interested in gardening generally. The volume has been edited with his usual thoroughness by Mr. John Fraser, who is one of the oldest members of the R.H.S. Gardens Club, for he was engaged in the old Chiswick Gardens so long ago as 1880. The articles and correspondence show that the members are spread over all parts of the globe: one of the most interesting contributions is from Mr. L. C. Edwards, who describes gardens in central tropical Africa. It is interesting to note that Roses are equally popular in that remote district as they are in Europe, and Mr. Edwards gives a list of the names of a few sorts that he has seen doing well, including La France,

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* "British Timber." Three lectures delivered at the College of Estate Management, 1922, by M. C. Duchesne, F.C.I. *Quarterly Journal of Forestry*. 3. XVI. July, 1922.

Maman Cochet, and Frau Karl Druschki. Ramblers, however, are not a success, for they refuse to flower in that country. He states that Solanum Wendlandii will grow anywhere, and in Uganda he has seen it completely covering a tree sixty feet in height. Bougainvilleas, Passion flowers, Allemandas, and Gloriosas are also common climbers in those parts. He has considerable praise for Arctotis grandis, which he states is a splendid subject for supplying cut blooms. Salvia splendens forms a small shrub in Central Africa, and requires to be cut back to the ground from time to time, as it becomes untidy. It is interesting to know that plants raised direct from seeds obtained from England are never a success, but that when seed is saved from them the plants become better each succeeding season. We learn that the antiquities discovered at Wisley and referred to in Vol. LXXII., p. 292, were found in the seven-acre field; in 1922 a few hut dwellings were discovered about three feet below the surface, and from evidence that was forthcoming it seemed that the place was a site of an ancient village for the manufacture of pottery, dating somewhere between 50 B.C. and A.D. 50. The list of members and their addresses at the end shows that a very large number of prominent gardeners have been associated with the R.H.S. gardens, either at Chiswick or Wisley.

Paris Spring Show.—The French National Horticultural Society has completed its preliminary arrangements for the holding of the spring show in Paris, which will take place at Cours-la-Reine from May 25 to June 3, 1923. There will be many prizes and medals, some offered by the French Government, some by private individuals; and besides these, the Society itself will award Diplomas of Honour for the best exhibits, only one award, however, being made to any one exhibitor. The Grand Prix d'Honneur will be awarded to an individual exhibitor, not to a collective exhibit; and there will be special classes for amateurs. Members of the jury will be permitted to exhibit, but not in any section which they themselves will judge. Details of the conditions for exhibits may be obtained from the Secretary of the Society (84, Rue de Grenelle, Paris), but it may be mentioned that all plants and flowers (except cut flowers, for which a little longer time is allowed) have to be at the show-ground two days before the opening date.

Canadian Timber.—The Imperial Institute Advisory Committee on timbers is conducting an inquiry into the possibility of extending the use in Great Britain of the timbers produced in the various countries of the Empire. The current report of the Committee deals with timbers from British Columbia and the eastern provinces of Canada, and the attention of the Office of Works has been called to the value of British Columbian Douglas Fir, Spruce and Hemlock for constructional purposes. As a result of special trials these woods are now included in their official specifications for Government buildings as alternatives to European woods. The Eastern Canadian timbers dealt with comprise soft woods, such as Spruce, red, yellow and white Pine, and hardwoods, including white Birch, Rock Maple, Beech and white Elm. According to the *Journal of the Royal Society of Arts*, the committee consider that the technical qualities of Eastern Canadian timbers are such as to warrant a far larger use of these woods in this country than obtains at present.

Horticultural Exhibition at Gothenburg, Sweden.—It is with considerable pleasure we learn that the horticulturalists of Sweden are reviving their quinquennial exhibitions, the sequence of which was broken by the great war. The last of the series was held in 1912; the next will be held at Gothenburg, from September 14 to September 23 of the present year. The authorities at Gothenburg are anxious that the horticulture of Great Britain and Ireland shall be represented at the forthcoming show, and they extend a hearty invitation to raisers and introducers of plants, flowers and fruits to exhibit their novelties, but all such novelties should be those put into commerce on or since January 18, 1920. As the horticulturists of Sweden, Denmark, Norway and Finland will take part in the great autumn exhibition, it is hoped that Great Britain and Ireland will avail themselves of this opportunity of displaying their new and rare plants and of getting into touch with Scandinavian gardeners and nurserymen. Inquiries concerning the show and notification of intention to exhibit should be addressed to Mr. T. Berg, 5, te Nordiska Trädgärdsutställningen, Göteborg 5, Sweden.

Mr. A. A. Pettigrew.—The Chief Officer of the Parks and Open Space Department under the Cardiff City Council is the youngest of three brothers who occupy notable and responsible positions in the horticultural world. The family name is well-known in Cardiff, as the late Mr. A. Pettigrew was for many years gardener to the Marquis of Bute at Cardiff Castle, and for a long time unofficial adviser on horticultural matters to the governing body of the capital of South Wales. Mr. A. A. Pettigrew was apprenticed after the old Scottish method, and following six years' training under his famous father at Cardiff Castle, he went to Kew, where, as in the case of his two brothers before him, he took full advantage of the great facilities a Kew training affords. In 1900 he became gardener to the Earl of Plymouth, at Hewell Grange, Worcestershire, where he distinguished himself by creating many new features. Here he remained for fifteen years, and when his elder brother was appointed to the charge of the Manchester parks in 1915, Mr. A. A. Pettigrew was appointed his successor. All who have seen the public parks of Cardiff will agree that they are maintained in excellent condition Some additions and several alterations have been made during Mr. A. A. Pettigrew's superintendency, and these have also added to the beauty and usefulness of the parks and open spaces of the busy city, which are described on p. 118.

MR. ANDREW PETTIGREW.

Superintendent of Cardiff Public Parks and Gardens.

Flowers in Season.—Mr. T. R. Cuckney, Arnside, sends sprays of a species of Pyrus which he states is the Japanese variety of Prunus communis (syn. P. domestica), gathered from an orchard at Arnside, Westmorland. He also states that he "has had this tree under observation for several years, and that it always flowers early in February, but was even earlier this year. The flowers are always destroyed either by frost or cold winds, and the tree in consequence never fruits. This Prunus appears to me to be the earliest of all the Plums to flower." Branches sent by Mr. Cuckney are smothered with blooms like small Plum flowers, the individual blossoms being about half an inch in diameter, and with stalks more than that long. The leaf buds are just expanding, and give a pretty touch of greenery to the shoots, which have a very dark bark. The tree is probably Prunus cerasifera, the Cherry Plum or Myrobalan, which is sometimes used as a stock for Plums. Except that the plant flowers earlier, it is difficult to distinguish it at this stage from the wild Plum, Prunus communis (P. domestica). The fruits, however, are very distinct.

Wart Disease of Potato.—As a result of the Wart Disease Immunity Trials carried out at Ormskirk, in 1922, the Ministry has decided to add the following varieties to its list of sorts approved as immune to Wart disease: Millar's Beauty, Marquis of Bute, Ben Lomond, Ben Ledi, Ben Cruachan, Utility, Golden Las, International Kidney, and Clifden Seedling. A report on the Ormskirk trials, together with details of the characteristics of the above-mentioned varieties, will be published in the Ministry's *Journal* for March, 1923. A complete list of the approved immune varieties, which alone may be planted on land infected with Wart Disease, may be obtained on application to the Ministry at 10, Whitehall Place, London, S.W.1.

S. T. Wright Memorial Fund.—We learn that the S. T. Wright Memorial Fund will close on March 31. Up to the present a sum of nearly £300 has been contributed, including £100 from the Royal Horticultural Society.

Northern Scotland as a Forest Area.—Professor Hosmer, Dean of Forestry in Cornell University, U.S.A., who made a lengthy tour of Europe, including Scotland, last year, in the interests of forestry education, has, in his report, made special reference to the northern half of Scotland as a potential forest area. He characterises as an enormous undertaking the scheme the British Forestry Commission has in hand at Craibstone, near Aberdeen, where the nurseries contain some 50,000,000 trees. He considers Craibstone an excellent field for research, in connection both with the nurseries themselves and the adjoining woodlands. About 650 acres of these latter have been added to the Craibstone estate since Professor Hosmer's visit. He also visited, in the course of his tour, the famous Ballochbuie forest, near Balmoral Castle, Aberdeenshire, the Seafield Woods in Upper Strathspey, in both of which districts the natural Scots Pine woods may be seen at their best; and the young woods of Douglas Fir and Sitka Spruce recently planted by the Forestry Commission on the banks of the Caledonian Canal. Summing up his Scottish impressions, Professor Hosmer declares that the North of Scotland is essentially a forest country, and forestry ought to be receiving more attention than it was doing at the present time, on the part of all sections of the community. There is need, he thinks, for greater activity on the part, not only of landowners, but of the State, as well as local authorities, who should be afforded an opportunity of co-operating with the Forestry Commission in afforestation work being undertaken in the districts in which they are specially interested.

Local Horticultural Societies.——It was stated at the annual meeting of the Norfolk and Norwich Horticultural Society, held on the 14th ult., that the spring show had never resulted in a success financially, the loss on these exhibitions averaging £50, and it was decided not to hold a spring show this year. The Chrysanthemum show, however, was, as usual, a great success, while the Rose exhibition was fairly well attended. There is a proposal to hold a show in June in connection with the exhibition of the Royal Norfolk Agricultural Association, and the Committee was authorised to enter into negotiations with the Agricultural Association. The Chrysanthemum show this year will be held on the same days as the Norwich Fat Cattle show.——Two interesting presentations were made at a special meeting of the Hythe Gardeners' Society, held on the 5th ult. The secretary, Mr. G. Andrews, was presented with a walking-stick, and the chairman, Mr. Waghorn, who has held that office for twenty-one years, was presented with a smokers' outfit. The Mayor of Hythe has accepted the office of president of the society for the ensuing year. The society will hold an autumn show on November 7, and has arranged for a special exhibition of Roses at the meeting to be held on June 18.——Aylesbury Chrysanthemum Society has had a very successful year, and been able to make contributions of £33 2s. to the Royal Bucks Hospital and £10 to the Aylesbury and Walton Sick Nursing Association. The society commenced the year with a balance in hand of £16 6s. 3d., and finished with a balance of £12 19s. 3d., notwithstanding that the prize money of last year's show was increased by over £10. The society has total funds amounting to £68 4s. At the annual meeting Mr. R. Partridge was elected president, and Mr. H. A. Papps reappointed secretary. Mr. S. G. Waters has offered a Chippendale Rose bowl for the finest display of cut Chrysanthemums at the next show, which is fixed for Thursday, November 15.——Mr. F. M. Vokes, of Sholing, delivered a lecture to the members of the Winchester Horticultural and Gardeners' Association on the 20th ult., his remarks being illustrated by photographs in natural colours of new and rare Daffodils. Mr. Vokes is a most successful exhibitor, and during his professional career has won over 4,000 prizes. He stated that the Sholing Daffodil and Spring Show would be held on Easter Monday.

Encouragement for Horticulture in Canada.—The person doing the most valuable work for the advancement of horticulture in Canada during this and succeeding years is to be awarded a medal by the Canadian Horticultural Council, which has accepted a donation of £20 annually from Mr. J. E. Carter, of Guelph, Ontario, for the purpose of providing the medal.

Appointments for the Ensuing Week.—Sunday, March 4.—Wakefield Tulip Society's meeting. Tuesday, March 6.—Royal Caledonian Horticultural Society's meeting. Wednesday, March 7.—Wimbledon and District Gardeners' Society's meeting; Lewes and District Horticultural Society's meeting. Thursday, March 8.—Wargrave and District Gardeners' Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*The Dumelow Crab.* The Dumelow Crab probably was raised by Thomas Dumolo, of Newhall, near Burton-on-Trent, who died about the year 1812 or 1813. He had a small farm there of his own; he did, or rather his wife did, rear Apple trees from pippins, and sold them or gave many away. Amongst his friends and acquaintances about Ashby-de-la-Zouch, he was called by some in that neighbourhood, the Apple-tree man. He had an orchard with many young trees in it, and two larger ones very good bearers. The one a Northern Greening, the other bore a fine transparent, and when ripe, wax-like looking Apple, with the most beautiful yellow and red hues; both were very good keeping Apples, the one as good as the other in that respect, and these were the two principal trees from whence he had his winter stock for use. His wife's method was, when peeling Apples for use, to select the finest pippins and preserve them to plant at the proper season. When the pippins had grown and were of sufficient size to be removed, they were planted out in rows; there they remained, row after row, good and bad, year after year, until they bore fruit, when the best were marked with a piece of list or string, the inferior ones marked (blazed) to be grafted. Those that were not grafted were sold or given away under the name of a Crab Apple; those that had been grafted retained the name of the graft. The writer has heard the old man tell many tales about his Crab Apples, and knows what is written to be correct.—*J. D., Coleshill, Gard. Chron., February* 26, 1848.

INDOOR PLANTS.

SOLANUM HYBRIDUM.

This Solanum is undoubtedly one of the best plants to cultivate for the decoration of the conservatory or for giving brightness to rooms in the dwelling-house during the dull days of winter, on account of its bright red berries and dark green foliage. The plant is of very compact habit, and produces berries freely when grown in 5 inch and 6 inch pots, a size that is useful for standing in small vases for the decoration of dwelling-rooms.

Solanum hybridum may be easily raised from seed sown in heat in February or March, and the young plants, if grown on freely throughout the summer, will give a profusion of berries the following autumn. Its propagation may also be effected by cuttings of the young shoots placed in a warm temperature under a handlight or frame. This method is to be recommended, as it gives the opportunity of taking the cuttings from the finest-berried plants, thus ensuring stock of the best strain.

Many cultivators plant this Solanum out of doors during the summer, in rich soil, on a warm border. The plants are started into growth in the spring, and gradually hardened before they are planted out. They make stronger growth in this way and become more robust; but they require careful handling when lifted in the autumn; otherwise a considerable quantity of the foliage will drop after the roots are lifted and potted. A good plan is to give the roots a copious watering a day or two before lifting, especially if the soil is at all dry, to secure a good ball of soil and prevent a check to the plants. Be careful not to overpot them; as regards the size of pots, the grower should be guided by the size and vigour of the specimens.

After potting the plants, place them in a shady part of the greenhouse or pit until they begin to make fresh roots. When they are well established grow them in a sunny part of the house. Be careful not to grow them in too much heat, otherwise the foliage and berries will drop. Water the roots in moderation for a few weeks after potting, and shade the plants from the sun. Specimens grown in pots are the most successful, because if properly looked after, they receive no check such as is occasioned by lifting, and as soon as they are established in 5 inch or 6 inch pots may be plunged out-of-doors in ashes until the cold weather sets in, then taken indoors like any ordinary greenhouse plants, and treated accordingly. The top of the shoots should be cut away at the point where the last berry is formed. This will divert the whole strength of the plant to the development of the berries that are already formed.

If required for decoration early in the winter, the plants should be placed in a temperature of about 55° to 60° for a few weeks; otherwise cool treatment suits them best. Green fly is sometimes troublesome on the young shoots, and must be kept in check. Thrip and red spider often attack the plants when they are kept too dry, and feed on the tender leaves; the under sides of the foliage then turn a rusty colour and the leaves generally drop. The plants should be syringed frequently, and as a further precaution, the house should be fumigated occasionally. *John Heal, V.M.H., 10, Musgrave Crescent, Fulham.*

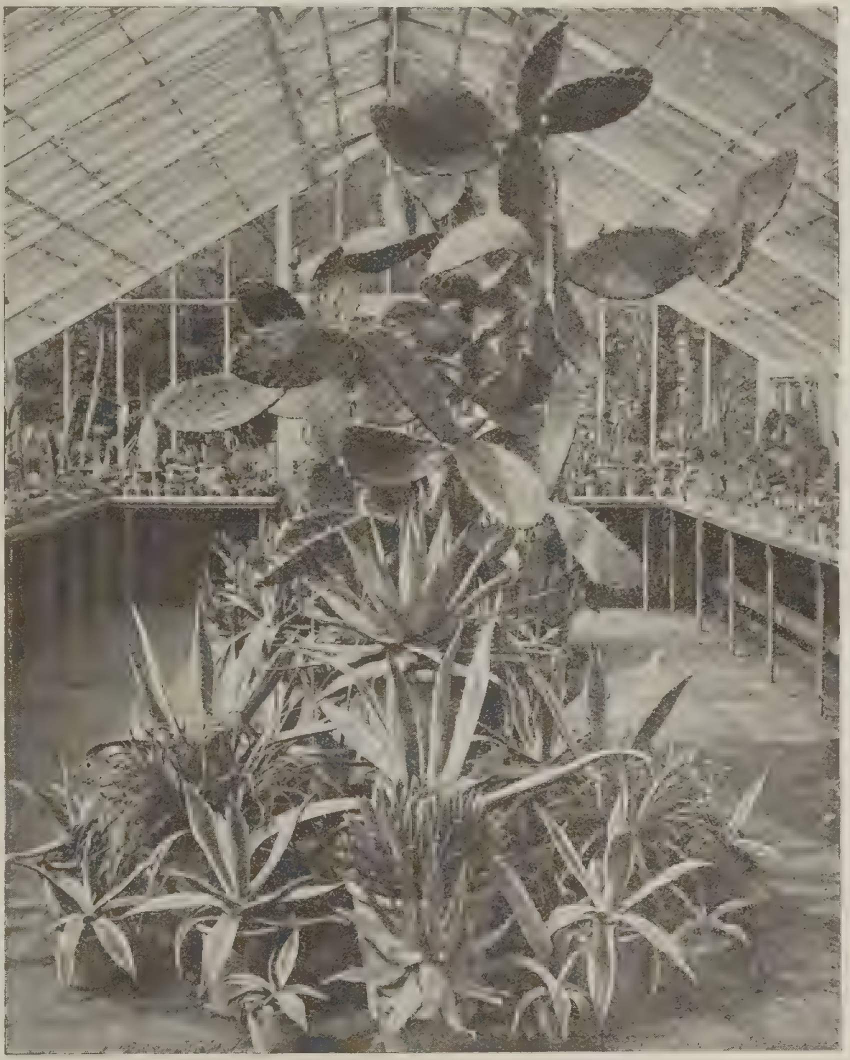


Fig. 56.—Group of succulent plants in the conservatory, Roath Park, Cardiff (see p. 119).

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Masdevallia Chimaera.—Masdevallias of the Chimaera section, which comprise M. bella, M. Chimaera and its varieties, and others, may receive attention if they are in need of potting. It is a mistake to disturb these plants if they are healthy and making satisfactory growth, but care must be taken that the compost does not become decomposed, as they resent a decayed rooting medium. Masdevallias of the Chimaera section should be grown in shallow baskets, as their flowers are produced from spikes which often come from the bottom of the plants and grow in a downward direction. The stronger-habited kinds such as M. Harryeana, M. Veitchii, and M. ignea, are best grown in ordinary pots; any specimens requiring a shift may be repotted at this season. It is not advisable to disturb the roots more than is necessary, only removing the sour, decayed material.

Cymbidium.—Such species of Cymbidium as C. giganteum, C. Tracyanum, the hybrid C. Winnianum and others which produce their flowers during the early part of the year, have passed out of bloom. Any necessary repotting may be done as soon as the young growths are sufficiently advanced, using a compost consisting of two parts good fibrous loam, one part peat fibre, some broken leaves, and Sphagnum moss, with sufficient broken crocks to ensure porosity of the compost. The latter should be used in a rough state, as the fleshy roots of these plants do not succeed in a compost that is very fine. The roots of all Orchids are a good guide to cultivators in this respect; those of a fine nature delight in a compost of a closer texture than the more succulent and thicker roots. Cymbidiums, when growing freely, are gross feeders, and soon exhaust the material unless it is of a strong, retentive nature. Use a liberal amount of crocks for drainage, as when thoroughly well rooted these Orchids require liberal supplies of water at their roots. These useful plants grow well in a cool position in the intermediate house, or the warmer end of the cool house, but generally the cool house is too moist and humid for them. Red spider, and sometimes a small scale insect attack the leaves, especially if the atmosphere of the house is at all dry, so that every precaution should be taken against these troublesome pests. Before repotting the plants it is advisable to thoroughly cleanse them, so that there will be less fear of attacks of insects afterwards.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Acacias.—As these shrubs pass out of flower they should be pruned hard, and kept a little warmer and closer until they break into growth; they will be assisted in doing this if they are sprayed with clear water several times daily in bright weather. If it is necessary to repot them, this is best done just as they are starting into growth. When growth is completed they may, with advantage, be stood out-doors during the summer. Some of the species are not well suited to cultivation in pots, this is especially true of A. dealbata and A. Baileyana and A. cultriformis; all of them make fine specimens when planted out in a cool conservatory. The species and varieties best suited for pot cultivation are A. armata and its varieties; A. diffusa, A. Drummondii, A. juniperina, A. obliqua, A. longifolia, of which there are many varieties, the variety mucronata being one of the best; A. platyptera, one of the earliest to flower, A. pulchella, A. Riceana and A. verticillata. They may all be propagated from seed, but it is usual to increase the best kinds from cuttings. For this purpose shoots with half-ripened wood should be selected, choosing the more slender growths for preference. The cuttings should be dibbled into pots of sandy peat made very firm and stood under a bell glass in a cold case.

Tuberous-rooted Begonias.—Seedling tuberous Begonias should be kept growing freely by giving them frequent shifts into light, rich soil; in their younger stages they are best grown in shallow seed-boxes. When they have attained a suitable size they may be potted, and a portion of them planted out in cold frames, where, in due course, they can be hardened and planted out of doors when danger from frost is over. Treated in this way they will make excellent tubers for pot cultivation next year. Dry tubers should be started in sufficient quantity to meet the requirements of the establishment.

Other Begonias.—Begonia fulgens, B. gracilis, B. Davisii, B. Pearcei and B. Sutherlandii are all beautiful and interesting species, worthy of more general cultivation, also B. weltonensis and B. Evansiana. The last is nearly hardy, as it will survive in the open for several winters at the foot of a warm wall. In addition to the above, there are large numbers of so-called shrubby species, which are invaluable for furnishing the greenhouse and intermediate house. Some are winter flowering, others are at their best during the summer. They include such useful sorts as B. coccinea, B. fuchsioides, B. echinosepala, A. acuminata, B. Ingramii, B. Corbeille de Feu, and many others, which I hope to deal with in due course. They are nearly all easily propagated by means of cuttings inserted in pots and rooted in a warm propagating case.

General Remarks.—Continue to introduce forcing plants into warmth according to requirements. An increased amount of ventilation will be required, as frequent bursts of sunshine quickly send up the temperatures, but as cold winds are frequent, great care must be exercised in ventilating, opening the ventilators on the sheltered side of the houses, as nothing is more harmful to plants than cold draughts; shutting up the houses with plenty of sunshine is also harmful. Many plants will now require increased attention as regards watering.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Apricots.—As these trees come into flower the blooms should be carefully pollinated. If free setting varieties are not intermixed with shier fruiting sorts, pollen should be transferred to the blossoms of the latter from the former. Trees growing under wall cases should be examined to see if they are dry at the roots and watered or not, accordingly. Careful attention should be paid to the stopping of the young shoots as they develop. This should also be done in the case of Peaches and Nectarines grown in similar structures. The trees may be mulched with well decayed manure.

Quinces.—Do not allow the branches of Quinces to be crowded, as air and light are essential to the full development of the fruit.

Wall Trees.—Newly planted trees which have settled in the soil may be trained. Avoid crowding the young shoots, and allow ample room in the ties or shreds for the swelling of the stems.

Espalier trees and trees on Pergolas.—Newly planted trees of this description should be carefully trained. Where shoots are required to be turned up at appropriate distances apart thin sticks or canes should be tied on the iron or wire supports, one for training each shoot. The latter, when in full growth, soon strengthens, therefore, if raffia is used for tying it will last long enough for the shoot to retain the desired shape. The shoots should be cut back to a point as near the required width between them as possible; a distance of 16 inches to 18 inches apart is suitable for trees on pergolas.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Sweet Peas.—Make a sowing of this hardy annual in ground that has been well prepared. To allow for damage by mice or squirrels, sow rather more thickly than it is intended the plants shall remain, as thinning can always be practised and the surplus seedlings planted elsewhere. If Pea guards are not available, stretch strands of black thread over the seed-bed to keep off birds. Stake the plants early. Plants bitten by birds will grow again, but they will be much later in flowering because of the check.

Hardy Flower Borders.—Where these have not been attended to since the plants were cut down and cleaned, the free spaces between the plants should be dug over a few inches deep, not only for the sake of tidiness, but to aerate and warm the soil. Care is necessary not to damage any fleshy-rooted subjects or disturb any choice plant. Should the root-stock of any specimen have grown undesirably large, the plant should be taken up, divided and replanted. During the operation of digging over those beds some growers incorporate manure at the same time, but I prefer to apply the latter as a mulch later—when the ground has become a little warmer, and the surface roots more active. Granted the first method finishes the work at one operation, a matter to be considered where labour is scarce, but the latter method is, to my mind, the better.

Eccremocarpus scaber.—This quick growing, desirable climber, which is sometimes known as Calampelis scabra, may be raised from seed sown now in a warm greenhouse. The plants will produce a little bloom at the end of the summer or early autumn. After the seedlings have been potted and recovered from their disturbance, place them in a cold frame for a period before planting them out of doors. The second year and onwards the plants will flower earlier and more freely, especially on light, well-drained soils. In cold gardens some covering around the roots is advisable. Plants of Eccremocarpus in these gardens did not get cut down last winter, and the growth-tips of last year are already growing apace, while a few seed-pods are still in evidence. The flowers of this pretty rambler are orange and red, and tubular in shape.

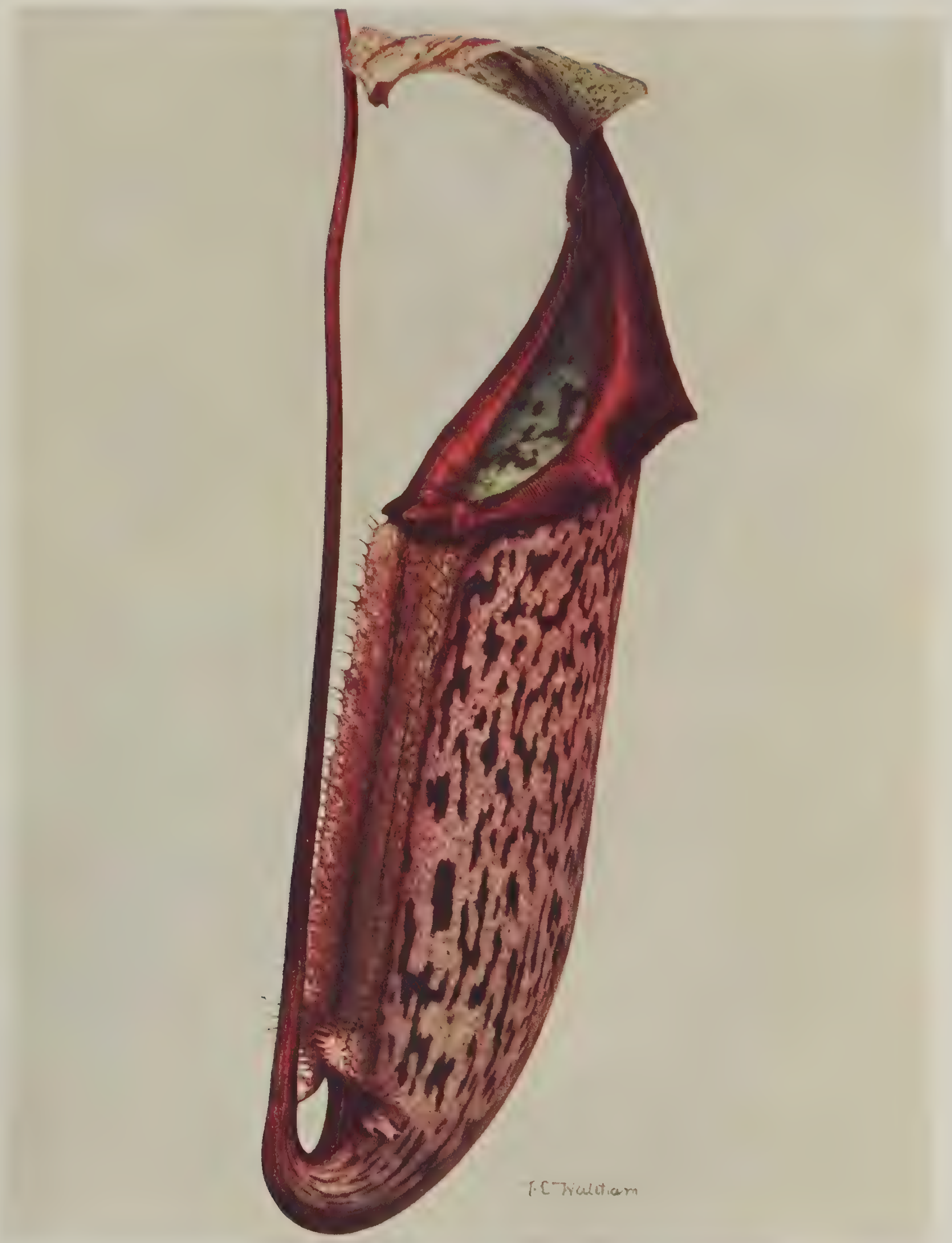
FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Cucumbers.—If young Cucumber plants are nearly ready for planting out, make the hot-bed from fermenting materials that have been suitably prepared, and place a continuous ridge of soil, or mounds of soil, consisting of light fibrous loam mixed with leaf-mould, on the hot-bed; if the soil is of poor quality, add well rotted manure and bone flour to it. The young plants should be as near the roof-glass as is convenient. The heat of the bed should be on the decline before the plants are put out. A steady bottom heat of 75° to 80°, and an atmospheric temperature of 65° to 70° by night, and 75° to 80° by day are essential. Encourage free growth by affording abundant atmospheric moisture; provided the walls, paths, etc., are damped frequently, ventilating may practically be dispensed with. Apply water sparingly until the roots become active. If wireworms are present in the soil, they may be trapped by inserting slices of Potatos or Carrots deeply in the soil; the place of insertion should be marked, and the traps examined daily.

Pot Vines.—Young vines of last year's raising which have been rested in a cool house may now be started in gentle warmth preparatory to repotting them. The vines having been cut back some weeks ago to the two lowest, plump buds should have the ball of soil gradually moistened to encourage the vines to break into growth. When the shoots have attained a

Supplement to the "Gardeners' Chronicle."



NEPENTHES MIXTA.

A hybrid from N. Northiana and N. Curtisii.

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length of about two inches, the vines will be ready for repotting. The potting compost should consist of good fibrous loam mixed with bone-meal and a liberal sprinkling of wood-ash. The compost should be prepared and stored in a dry, warm place in readiness for use when required. If the soil is deficient in lime, a dusting of freshly slaked quick-lime—a five-inch potful to each barrowload of soil—will prove beneficial. Use 11-inch pots and see that they are crocked carefully, as efficient drainage is all-important. If the soil at the time of potting is reasonably moist, water should be withheld for a few days and then sufficient moisture given to soak the soil thoroughly. By plunging the pots in a mild bottom heat, root action will be accelerated. Syringe the vines daily. After a short period, remove the weaker shoot where two have started, securing the stronger to a light stake. Stimulants will not be required at the roots until the latter have permeated the soil.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Onions.—The plot of ground where it is intended to plant Onions should receive a dressing of soot and wood ash, and, if in a suitable condition, be lightly forked over, but this should not be done if the ground is wet. The past month, with its continued falls of rain and snow, has not been very favourable to ground operations, and nothing will be gained by attempting to do this work in a hurry. More especially does this apply to heavy and tenacious soils, which are benefited by being left in a rough state for so long as possible. To produce good serviceable-sized Onions for ordinary use, seed may now be sown in frames on a hot bed which has been used for forcing such crops as Asparagus. Fork the soil over, add a little fresh compost to it, and make it very firm. Draw the drills about six inches apart and sow the seed thinly, covering them with about half an inch of the soil. Rake the surface with a small iron rake, and give the bed a good watering. Keep the frame closed until the seedlings appear, then admit plenty of air according to the weather, and the result will be a fine crop of sturdy, young plants. In about a month or six weeks the seedlings will be ready for transferring to the open ground, planting them about six inches apart, and allowing a foot between the rows.

Cucumbers.—Beds should now be made in the Cucumber house for the reception of young plants raised from seed, sown as advised in a previous calendar. Make a hot-bed consisting of two parts leaves to one of long, stable litter, mixed well together, and placed about eighteen inches or two feet thick, taking care to make the materials equally firm all over the bed. On this place a layer of turf cut from an old pasture, and place the turves grass side downwards. Allow this to remain for a few days to allow the heat to moderate, then apply a light dusting of soot and old mortar rubble. Prepare a compost consisting of two parts of rough turfy loam, pulled to pieces by hand, one part leaf-mould and one part manure from an old Mushroom bed, with a sprinkling of half-inch charcoal to keep the materials sweet. Place the soil along the centre of the bed, and when it is warmed through turn the young plants out of their pots, and plant them firmly in the bed at intervals of about two feet. Place a neat stake to each plant, but do not tie it to the trellis for a few days, as the bed will sink a little. Water the roots sparingly for a time, as there will be sufficient moisture arising from the bed for their needs until the plants begin to grow. Syringe the latter overhead on bright days, and conserve all the sun heat possible rather than allow the pipes to become too hot, by resorting to much fire heat. Keep the walls and paths well damped, otherwise red spider may make its appearance. Pinch the leader out when the plants reach the first wire of the trellis, and as growth proceeds continue to pinch the leading shoots at every second or third joint. Do not allow the plants to crop too soon, but remove the first few fruits that form.

NOTICES OF BOOKS.

The Apple Tree.*

The author of this little volume is well known as the writer of several text-books on American horticultural practice. His latest work is of a different order. It is really a nature study book—a genial chat about the natural history of the Apple by one who evidently loves his subject and is a close observer. He takes his reader to the tree at various stages of its development and in all seasons, and shows them how it grows, how bloom and fruit are produced, what pests and diseases commonly attack the tree, etc. Although the object is to interest rather than instruct, there are lessons to be learned about pruning, grafting, budding and repairing wounds. Everyone who undertakes to prune Apple trees can do his work with more intelligence if he knows how the growth develops in a state of nature, uncontrolled by the knife. This is well shown by the author, who points out how the shoots, spurs and fruit-buds have developed during three years' growth of a branch. He is not amongst those who accept the common belief that an Apple tree should bear only every other year. "It is assumed that the making of a flower-bud requires more energy than the making of a plain leaf-bud. If this is true, there may not be energy enough to carry a flower-cluster and to make a new flower-bud at the same time. But if the tree is in proper vigour, is well fed, protected from noxious organisms, not allowed to overbear, it should have sufficient energy to make a crop every year, frosts and accidents excepted. It is probably a question of nutrition." Several of the chapters have reference only to American practice and varieties.

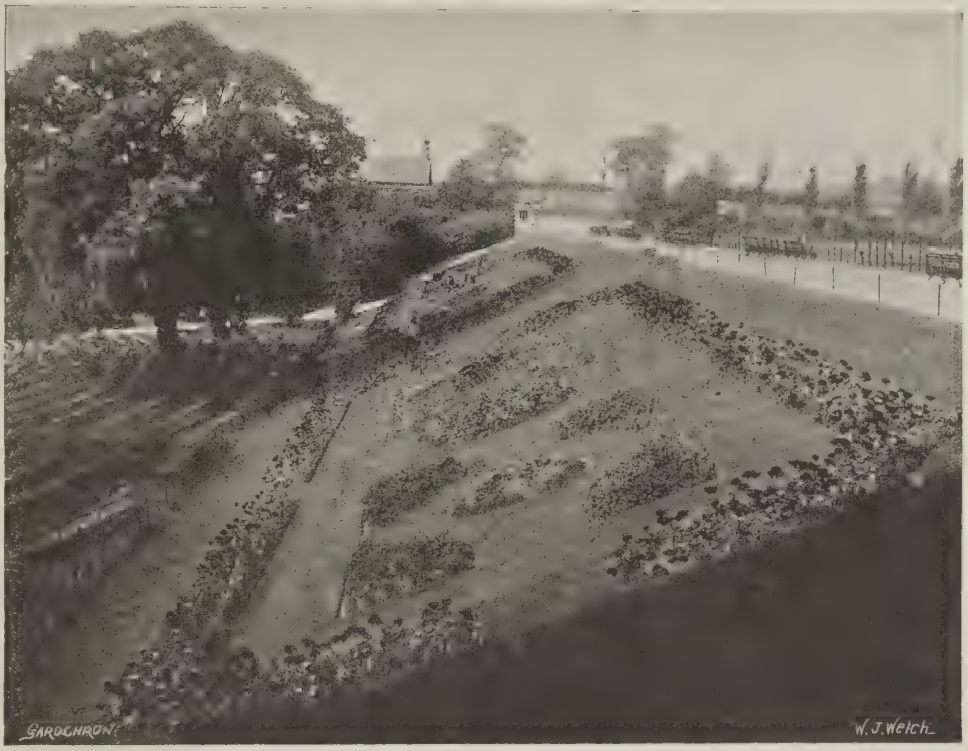

FIG. 57.—LAKE EMBANKMENT IN ROATH PARK, CARDIFF, WITH FORMAL FLOWER-BEDS (SEE P 119)

Fruit Foes.†

Gardeners, particularly amateurs, will find this book extremely useful in identifying the many pests and diseases that attack fruit trees and bushes. The most valuable feature is the series of thirteen coloured plates, depicting twenty-seven insect enemies, from drawings made by the late Miss Kate Ashley. These are well executed, and they are supplemented by numerous illustrations prepared from photographs and drawings, mostly of a helpful nature. In the text, brief life histories and descriptions of the pests and diseases are arranged under their principal host plants, which include Vines, Figs, Strawberries, Loganberries, Nuts, and Peaches, in addition to the ordinary orchard and bush fruits. In each case remedies or preventives are suggested. Generally these are reliable and up-to-date, but there are several errors and omissions. The only remedy given for the various aphides which attack the Apple tree is autumn spraying with soap and nicotine mixture "to destroy the newly deposited eggs." It is true that some entomologists have recently advised this method of killing the egg-laying females (not the eggs themselves), but it is hardly out of the experimental stage. Spraying just before the bloom opens, before the aphides have multiplied and protected themselves by curling the foliage, is still the standard remedy, and should certainly be mentioned, as should also the possible necessity of spraying again during the summer in the event of an attack by winged migrants from elsewhere, against which autumn spraying can never be any protection.

To keep hares and rabbits out of an orchard the old-fashioned barrier of tarred cord is recommended. That this may prove quite useless the present writer has learned from bitter experience.

In an otherwise useful chapter on sprayers and spraying, the reader is impressed with the importance of seeing always that the liquid is delivered in a "mist-like diffusion." This is correct for summer fungicides and arsenate of lead, but is useless in the case of contact washes used against sucking insects, and winter washes, both of which must be applied copiously through a coarse nozzle to be effective.

The section on insecticides and fungicides includes, mainly, modern, proved formulae, but lime-sulphur is wrongly placed amongst the former; and Burgundy mixture, which is so injurious to most fruit trees in foliage, is mentioned as an alternative to Bordeaux mixture. In spite of these mistakes the book is excellent value. *M. G.*

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* *The Apple Tree.* By L. H. Bailey. London: Macmillan & Co. 117 pp. 7s. net.

† *Fruit Foes.* By T. W. Sanders, F.L.S., Editor of *Amateur Gardening.* London: W. H. and L. Collingridge. Illustrated. Price 4s. net.

SOME PERENNIAL CARPETING PLANTS.

For carpeting the ground occupied by hardy early-flowering bulbs, the foliage of which dies off early and leaves the soil bare, or for furnishing the space between taller subjects, it is frequently necessary to carpet the ground with low-growing species. It is advisable to choose for these carpeters subjects which will not grow so strongly and densely as to interfere with the other plants. There are many suitable carpeting plants, but those named will be found fairly representative and generally useful for the purpose. Nor are they very expensive, which is a great consideration, as it is necessary to plant them in considerable numbers. Any of those named may be planted in spring or autumn.

The Acaenas, or New Zealand Burs, are excellent, and are much varied in their appearance. A. Buchananii, with Pea-green foliage, is exceedingly pretty, and so are A. inermis, bronzy-green, and A. microphylla, which, besides its small bronzy foliage has attractive, crimson, ball-like burs, set thickly above the leaves. Some of the Achilleas, or Yarrows, are excellent; A. tomentosa, with silvery foliage and pleasing flowers, is quite good, and is cheaper than the others. Antennaria tomentosa, with silvery-white foliage, is another capital plant for the purpose. The various species and varieties of Arabis are well known, and are excellent carpeters. One of the best of the single-flowered varieties is A. alpina compacta.

For shady parts, where a very close grower is required, Arenaria balearica is a charming plant with green foliage and tiny white stars; and I have seen the pretty A. laricifolia and even the exquisite A. montana, both with white flowers, employed for ground work.

Aubrietias will readily occur to the reader, and it is almost superfluous to say that purple, blue, lilac, pink, rose, blush and white may be selected for the flowering groundwork supplied by these useful plants. Cerastiums need no description, but the ordinary C. tomentosum is as good as any. The drawback of most of these Cerastiums is that they afford a harbour for slugs.

Many of the Dianthuses, or Pinks, are eminently suitable, and full choice of these may be made by studying nursery lists. The old double white Pink is good as a large carpeter; so also is Dianthus caesius, the Cheddar Pink. For a pretty green carpet adorned with rose-purple flowers we may have D. deltoides, the Maiden Pink, or its larger and finer congener, D. graniticus. Gypsophila prostrata is a good grey carpeter with white blooms, and in Herniaria glabra we have a green carpeter of small stature.

The Moneywort, Lysimachia Nummularia, makes a good carpeter, and the golden-leaved variety, L. Nummularia aurea, is a capital plant where a golden groundwork is needed. This last plant has the advantage of doing well in a damp place, even in the shade. Sagina glabra is a very good plant, and gives a dense carpet of greenery; while any of the Mossy Saxifrages give lovely carpets, and are attractive whether in or out of flower. Dwarf Sedums supply us with some pretty plants for our purpose, and among them are the common S. acre; the pleasing S. album; and the charming S. lydium, while the stronger S. stoloniferum may be utilised with advantage. Silene acaulis is a choice subject, but, although a good carpeter, is a shy bloomer with me. The bonny white Silene alpestris is a capital carpeter, and in the dwarf Thymes, varieties of T. Serpyllum, we have some admirable carpeters. Dwarf Veronicas, such as V. incana, V. Teucrium dubia, and V. repens are excellent. For places where a spreading habit may be allowed Linaria Cymbalaria may be acceptable, and such Campanulas as C. pusilla, C. carpatica and C. portenschlagiana may be cited as among the best. Tunica Saxifraga is also a capital subject. These are a few of the many useful carpeters which await the call of these who require them to give an added charm to their garden, and set off to the full the beauties of other flowers. *S. Arnott.*

CULTURAL MEMORANDUM.

PROPAGATING BEGONIA GLOIRE DE LORRAINE FROM LEAVES.

The present is a suitable time to commence propagating the different types of Begonia Gloire de Lorraine, such as Konkurent and Glory of Cincinnati. Propagation of the plants by leaf-cuttings, besides being a simple method, is a prolific one, as each leaf will give from two to five small plants, also, later, ten or fifteen root cuttings. As is well known, plants raised from leaves or stem-cuttings grow much more freely when once they make a start, and make much better specimens than those propagated from root-cuttings.

Presuming the plants have been kept on the dry side for a month or so, the leaves will have become more leathery and not so liable to damp in the propagating pit. Cut off each leaf with about half an inch of stalk and cut half through the veins of the leaves. Place the latter on a bed of sand, and make them firm by inserting the half-inch of stalk firmly in the sand. I root them in a temperature of 85° to 90°. The leaves are covered with glass, but care must be taken that too much moisture does not become condensed, for that would cause the leaves to rot before developing roots. Should there be signs of decay, remove the decayed portion at once. I place pieces of porous brick or charcoal on the leaves to absorb the excessive moisture; at the same time these help to keep the leaves pressed close to the sand.

With care and attention good results will be obtained in the propagation of these and other fleshy-leaved plants, such as Gloxinias, Streptocarpus, Gesnera, Kalanchoë flammea, from leaf cuttings in July or August when the plants have finished flowering and have been rested for a short time. A bulb will form in the case of the Gloxinia large enough to flower the following year. Dibble the leaves in sand or light sandy soil, inserting the thick end about one inch deep. This very old method of propagating, besides being prolific and economical, is also very interesting, especially to amateurs. In making the bed over a tank with hot-water pipes running through it and covered with slates or galvanised iron sheets, a good plan is to place a layer of broken potsherds covered with moss to prevent the sand running through; on the moss place a layer of washed sand two inches thick, press the sand firmly and water it before inserting the leaves. No further watering will be required, except a light syringing overhead in bright weather. As soon as the small plants appear, cut them carefully from the leaves and place them in small pots, in leaf-mould and sand. Place them in the propagating pit until they are well rooted. *James Page, Adelsnas Tradgard, Atvidaberg, Sweden.*

ORCHID NOTES AND GLEANINGS.

ODONTIODA RED DRAGON.

C. J. Lucas, Esq., Warnham Court, Horsham, sends the first flower of a very richly coloured Odontioda of good shape and large size, which he states was acquired with four other small seedlings from the Phillips collection. The cross is Odontioda Mars (Oda. Charlesworthii × Odm. Lawrenceanum) and Odontoglossum Clovis (Lambeanianum × Wilckeanum). In this, as in many crosses in which Oda. Charlesworthii takes part, the tendency is to produce almost wholly richly coloured sepals and petals, but the lip, especially in crosses in which Odontoglossum Pescatorei appears, usually retains the well-expanded white front, characteristic of that species. The sepals and petals are deep ruby crimson, the sepals with a very slight margin and the petals having a broader white band at the edge and white tip. The lip is pure white in front and ruby red at the base, the margin being white. There are gold markings on the crest; the column is white at the tip.

PUBLIC PARKS AND GARDENS.

I. CARDIFF.

It is the proud boast of the citizens of Cardiff that their municipal buildings have the finest environment of any civic buildings in this or, indeed, in any other country. Architect and gardener have both contributed to this result, for the magnificent buildings have been associated in the most pleasing manner with the Cathays Park, an open space of some 65 acres, on land that was formerly a part of the park and gardens of Cardiff Castle, which is quite near. Both buildings and park have been designed with a view to scenic splendour, and the result is most praiseworthy—a model for other towns.

The available land has been laid out as a series of open spaces, including a sunken garden. This is the smallest of the three principal areas which the Cathays Park includes, the others being known as Alexander Gardens and the Gorsedd Gardens respectively. The name of the latter is derived from the Gorsedd stones—the Gorsedd Circle, which encloses the prostrate Logan-stone that forms the seat of the Arch-Druid when the National Eisteddfod is held in Cardiff.

The Alexandra Garden is situated in a particularly sheltered spot, and includes lawns, flower beds, and shrubberies, the latter being filled with such interesting subjects as Picea excelsa pygmaea, various Cotoneasters and Barberries, Olearia macrodonta, Griselinia, Azara microphylla, Daphnes, various species of Osmanthus and beautiful Japanese Maples. The flower-beds are exceedingly beautiful in summer when they are furnished with bedding plants, including Ivy-leaved and Zonal Pelargoniums, Fuchsias, Heliotropes, Begonia semperflorens, and similar subjects.

Cardiff owes its wealth of municipal gardens mainly to the generosity of the Bute family, and it was only so recently as 1887 that the then Marquis of Bute, the Viscount Tredegar, and one or two other gentlemen presented the city with 140 acres of land for establishing what is now known as the Roath Park, the most important public park in the city. This delightful public open space includes all the best features which are possible in a park of this kind, and so skilfully has it been designed and planted that new features meet the visitor at every turn. But such beautiful places have to be made, and the chief credit must be given to the two successive members of the Pettigrew family, Mr. W. Pettigrew, now superintendent of the Manchester public parks and gardens, and his brother, Mr. A. Pettigrew, who succeeded him; these most capable gardeners having presided over the destinies of the park from its commencement. Roath Park is divided into six distinct parts, each of which has a character quite different from the other. The part nearest the town, comprising 23 acres, is used as a recreation ground, and on a summer's evening this is alive with old and young engaged in all manner of sports. In order to provide more space for games, the Roath Brook, which originally flowed through the centre of the recreation ground, was diverted to one side, and considerable expense was entailed in levelling the land for the purpose for which it was intended.

Leaving the recreation fields, the visitor enters the pleasure garden, an area of some 11 acres, full of the quiet beauty which lawns and flowers provide, with a wealth of trees and shrubs in happy association with them. The Roath Brook winds its irregular way through the garden amidst the natural vegetation of the banks, with trees meeting overhead—a scene of rustic beauty on which town-dwellers love to ponder. The planting of the brook with aquatics has not been overdone, but, where opportunity affords, Water Lilies and other water plants have been introduced, with a few suitable subjects here and there on the banks.

It is a very pretty park, with flower beds on the grand scale. Four large horse-shoaped beds cut in the grass and furnished holly with Geum Mrs. Bradshaw present a ass of glowing scarlet colour in late summer. he public bowling greens and tennis courts re in this part of the park. The borders, hrubberies and paths are in the best-dressed tyle, and the whole place is maintained in highly efficient manner.

Another section of Roath Park is known as he Botanical Garden, and this is especially nteresting to horticulturists for its collections f trees and shrubs, herbaceous and medicinal lants, and Alpines. The area of the Botanical arden is 15 acres, and the list of plants it ncludes is published, and occupies 43 pages f the official guide to the park. This large ssemblage of plants is of the greatest value students of botany; a typical portion of the tudents' garden is illustrated in Fig. 58. It ill be seen from the illustration that this arden is not of the severely formal type usually ssociated with such places, but has a setting f select trees and shrubs, with borders of uch showy flowers as Pentstemons, Calceoarias, Violas, and Dahlias at appropriate spots. A rock garden occupies a considerable rea of the Botanical Garden, and is situated n rising ground on the east side, and is reached by crossing bridges over the Roath Brook.

The conservatory (Fig. 56) is mainly occupied by a collection of succulents; the large Opuntia nigricans was brought from Palestine, 18 years ago, by the Vicar of Marshfield. Another fine feature of this part of Roath Park is the Fernery, that is mostly furnished with British species. This is in the direction of the lake, which is one of the glories of the place, and has been made by damming the stream, one of the embankments, furnished with flower beds, being shown in Fig. 57. The lake has an area of about 32 acres, and is used for boating, the sailing of model yachts, and fishing, for which charges are made. The water tumbles down a series of cascades in a corner of the Botanical Gardens, where it continues as the Roath Brook, and this spot is most beautiful, with Wistarias and species of Vitis overhanging the water, and such trees as Salix daphnioides and Escallonia Ingramii near the water.

At the extreme northern end of the lake is a large area of land known as the Wild Garden. Beyond draining it and the provision of paths, this part is retained in its natural state, and is filled with native shrubs and flowers, of which we noted large numbers of Aconitum Napellus, a plant that grows plentifully in Wales.

The fish ponds, in which young trout, hatched in the Corporation hatchery, are reared, are situated in the Wild Garden. The rearing of trout in the Roath Park was described in *Gard. Chron.* of April 15, 1911.

A small, self-contained, enclosed garden to the extreme north of Roath Park—Llandenis Garden—contains some very fine Bamboos, Rhododendrons, and Heaths. In it is a pool known as Ffynon Llandenis, that is interesting because of the miraculous cures that were formerly associated with the waters. Llandenis Garden, although separated from it by fields, may be regarded as a part of Roath Park.

We are able to give only a very incomplete description of this beautiful park, for it would require much space to deal with it fully, and there are several other open public spaces to which we desire to refer. They include, beside Cathays Park and Alexandra Gardens, the Llandaff Fields, Victoria Park, and Sophia Gardens.

Llandaff Fields comprise a playing area of some 70 acres. During the war, 40 acres were devoted to allotments. In the entrance is a fountain and water pool surrounded with flower beds. In one snug spot is a fine clump of Arundinaria anceps, with a background of tall Elms near a stream. A large rockery is effectively planted with Alpines, on the lower slopes of which are excellent specimens of Cotoneaster horizontalis and C. microphylla. In the foreground of the water are clumps of Nymphaeas, with golden Lysimachia Nummularia, Spiraea Aruncus, Thalictrum glaucum, and other moisture-loving subjects on the banks. A Fern dell in the woodland provides a cool retreat in summer.

Victoria Park has an area of 19 acres, and is principally devoted to games, tennis and bowls being popular pastimes of the Cardiff people. It contains a bandstand, and, like all the open spaces of this important city, is well laid out, the fine lawns being freely dotted with specimen trees. Flower beds have been formed near the bandstand. This park also includes a large area of water which is the home of many wild-fowl and a seal.

A feature of this park is an avenue of Cupressus Lawsoniana, a most accommodating Conifer, which seems to do well in most districts. Around the pond are many ornamental trees, including Pyrus Aria, the Copper Beech, Taxodium distichum and Cedrus atlantica glauca, with a setting of Hollies, Bamboos and other evergreen shrubs. There are several very fine specimens of Pawlonia imperialis in this interesting park, which includes amongst other amenities, a miniature zoological garden.

The Sophia Gardens are in a very central position. They are approached through a double row of Elms and Chestnuts. This public garden has an area of 15 acres and is freely timbered, the boundary on the west bank of the River Taff being planted with a variety of trees. It is in the Sophia Gardens that flower shows and fêtes are held, and our readers will remember that the Royal Horticultural Society held a provincial show there a few years ago—unfortunately, during a spell of very wet weather, such as South Wales indulges in occasionally.

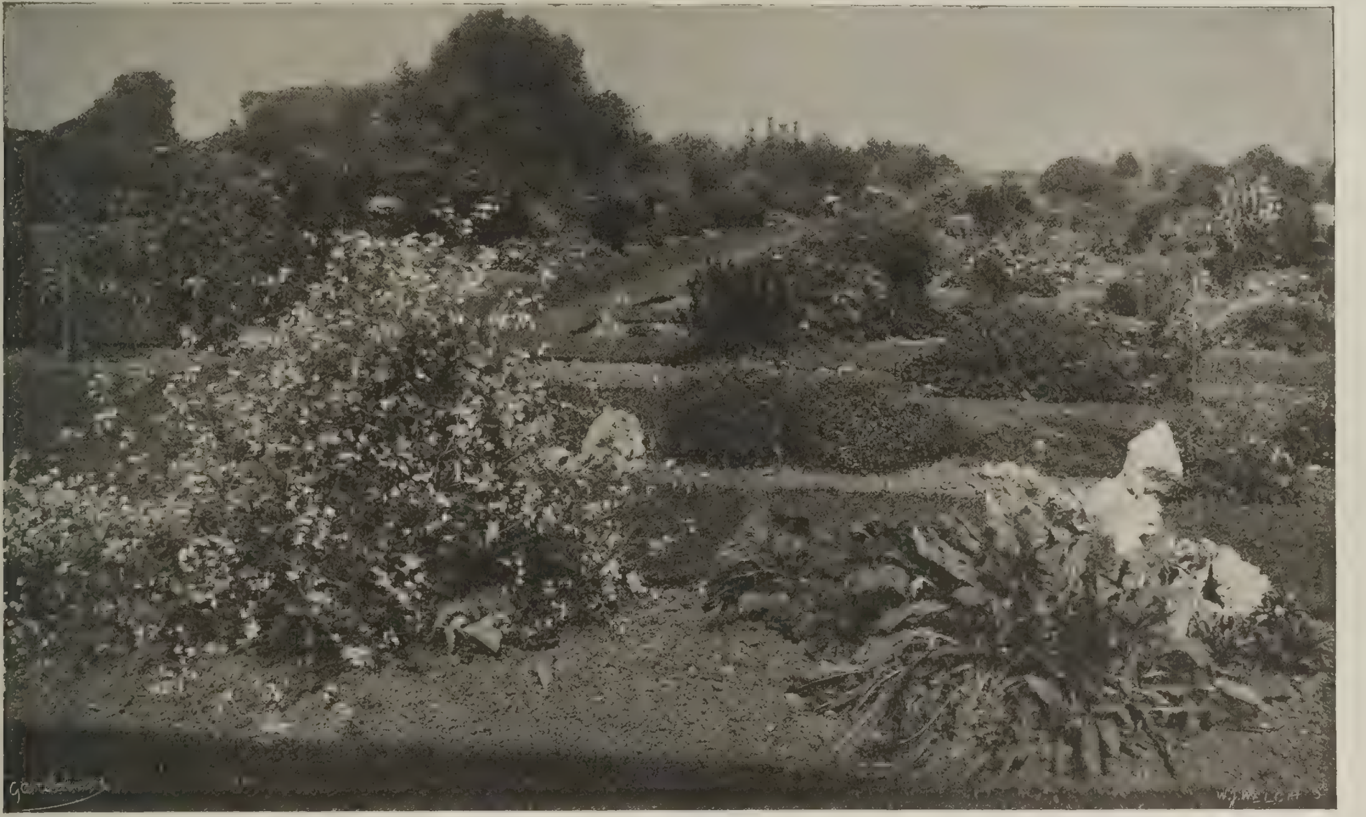

FIG 58.—THE STUDENTS' GARDEN IN ROATH PARK, CARDIFF.

NEW PUBLIC PARK FOR GOUROCK.

We learn that Gourock Town Council has purchased Gourock House and the adjoining grounds, extending over fifty-six acres, as a public park, the purchase price being £10,075. It is intended to develop a part of the area as a decorative park, and to devote the rest to recreation purposes. The grounds include a glen through which a burn flows, with a waterfall at one spot, and this is a most delightfully attractive feature. The estate of Gourock was formerly known as the barony of Finnart-Stewart, and in ancient times formed a part of the patrimony of the Douglas family. Upon the forfeiture of the Earl of Douglas in 1445 it was gifted by King James II. to the Stewarts of Castlemilk, from which family the barony was purchased in 1784 by an ancestor of the present owner, Colonel Duncan Darroch.

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"GORDON'S GARDENING."

THE only copy of this book which I have either seen or heard of is my own, an 8vo in plain calf binding. Its full title is *The Planters', Florists', and Gardeners' Pocket Dictionary; being a Practical Collection from the most approved Authors in the English Language, Relating to the above Three Parts of Gardening—adapted to the Climate of Scotland.* By James Gordon, Nurseryman and Florist, at Fountainbridge, near Edinburgh. Edinburgh: Printed for the Author M.DCC.LXXIV.

The site of Gordon's nursery is now covered by streets; it lay to the west of the city of Edinburgh. The volume is dedicated "To the Operative Gardeners in Scotland," and the author describes himself as an "affectionate Brother," which will remind the older generation of gardeners how in the days of their youth all young "Cabbages" were "made" brother gardeners.

In a brief preface Gordon approaches the eloquent in his praise of gardening, and quotes Addison and Cowley; but elsewhere he is baldly practical. And yet it is strange that he should give prominence to a method of producing variegation in the branches of trees by laying, day by day, corn or small pieces of bread round the stem of any tree, with the result of variegation following!

The arrangement of the work is alphabetical; the names are English, and the generic name follows, though that of an earlier date than Linnaeus. Indeed, it would require a special education in the plant names of the eighteenth century to enable one to locate the most of them, especially of the species. And in the many appendices, where English names only are used, the difficulty is vastly accentuated. On the whole it may be suggested that the value of the book consists in the longer articles in which common garden fruits, flowers, and vegetables are treated, and however dubious one may be regarding the originality of much of the contents these are obviously from the experience of the writer. Some are sufficiently interesting at the present time—Potatos, for instance. Eight varieties are named, four "mealy," and two "watery" to suit tastes. The Yam was grown to feed "fowls, etc." Medium-sized seed is preferred, small seed producing small plants, though a great change must have taken place in the productivity of small seed in the intervening period. Large Potatos were cut to two eyes, and what is now called the "rose-end" and preserved, was at that time cut off, as it still is by some growers. The rows were arranged 18 inches to 24 inches apart and the sets at 12 inches to 18 inches asunder. They were planted by means of a "dibble" manipulated by foot pressure, the set being dropped by a person following, who covered in the hole with soil moved by the foot. How that nothing new can be looked for in gardening appears from advice to hoe the surface before the growths appear—the more certainly to keep weeds under.

The Carnation may be selected for a flower, and our author gives a very good account of himself and it. It was immensely popular, and the varieties endless. The sections were Flakes, Bizarres, Piquettes—"These have always a white ground, and are spotted or pounced with another colour, such as scarlet, red or purple." How pretty some of them must have been! The fourth section were Painted Ladies. Gordon recommends that the smaller seeds be very carefully looked after, because from these the finest varieties were produced. The other cultural remarks are to the point, and an old-fashioned method of slitting up the lower end of cuttings is noted, which, if essential to the production of roots in bygone times, in these is not required.

The old florists had an elaborate system of tubs filled with water, raised on flower-pots, and trellises upon the tubs to hold the Carnation pots for protection when "in blow against the ear-wigs." Of the Clove July-flower, it is stated how "At present it is pretty scarce about Edinburgh, occasioned by the smoak, and the ashes, and over-dunging of the ground about that city." It was propagated by cuttings in July. "The true Clove is never propagated from seed, because it has none." Of Pinks "the new Dobson is the prettiest of the whole tribe, being of a more lively colour than the old, having the extremities of its petals finely tinged with white." The Charlotte "is a very beautiful flower of a red colour, something resembling the Clove-gilly-flower, but not so dark." From the China Pink a variety named the Sweet William Indian Pink had recently been raised, which came true from seed. Of the "Double fair-blowing Sweet William—called in England Sweet John," is a variety "called by some Fairchild's Mule."

The method of propagating Vines from eyes had not yet reached the Scottish capital, but Vines were grown in pots in stoves, on hot walls, and where there was a vinery therein. Gordon advises those who think of erecting a vinery to "see one that has ripened large quantities of fine fruit for several years in the Right Hon. Lord Alemoor's garden near Edinburgh." Under various heads there is much information regarding Apples, but of Scotch varieties there are comparatively few named, a noteworthy omission in connection with those named in the anonymous work on fruit culture six years earlier by Dr. Gibson. However, there are four "Lydingtons," Gogor, Hawthornden, Luphness, MacLean and Bancrieff, the spelling of most being phonetic. Similarly with Pears, the names of Scots varieties are limited, but there are Swan's Eggs, Muirfowl Egg, St. Andrew, Crawfords, Carnock, Achon, and Green Pear of Pinkie; Pinkie was an estate near Edinburgh celebrated for its trained Pear trees, and later for the transplanting of these successfully to a new garden.

There is a very interesting note on the doubling of flowers produced from seeds. Gordon believed that double flowers were degenerates, and notes that Stocks, Wallflowers, Marigolds, Larkspurs, and others, from seeds self-sown on gravel walks, gave more doubles than elsewhere in the garden! *R. P. Brotherston.*

NORTHERN PLANTS IN THE ANTIPODE

SOME time ago Sir Herbert Maxwell, in ter
to which I need not now refer, drew attention
the interesting question—How is it that plan
of the North can establish themselves and ma
a new home in countries of the Antipodes, whi
plants from those countries, New Zealand f
instance, are unable to establish themselves
the North?

The answer must lie, of course, in the endo
ment that the plants possess for efficient co
petition or adaptation to more or less ne
physical conditions in the one case, and not
the other; an explanation in the sense of a
counting for all the facts we may not, perhap
expect, but from the facts of a case it is oft
possible to arrive at a principle in action. Su
a principle which applies to the above questi
—but apparently to the side only of direct co
petition—(since very special and peculiar adapt
tions to quite exceptional conditions in a giv
area are put aside)—I find stated by Sir Ra
Lancaster on casually reading one of his book
More Science from an Easy Chair, and it ma
perhaps be of interest to readers of the *Gar*
Chron. In his chapter on "Animal Life
New Zealand," on p. 255, he writes, "Here
may state the great principle which, in regard
plants as well as animals, determines the su
vival of intruders from one region to anothe
It appears that setting aside any very spec
and peculiar adaptations to quite exception
conditions in a given area, the living thing
whether plants or animals, which are broug
to, or naturally arrive at, such an area, surviv
and supplant the indigenous plants and anima
of that area, if they themselves are kin
(species) produced or formed in a larger
more variegated area; that is to say, forme
under severe conditions of competition, and
struggle with a larger variety of competitor
enemies and adverse circumstances in general.'

Such is the principle as stated, and in a
cordance with it the flora of an oceanic islan
is exterminated by arrivals from a continen
Darwin especially maintained that plants pr
duced in that wide spreading belt of land
Europe, Temperate Asia, and North Americ
always pushed their way down the gre
southern stretches of land by cool mountai
roadways, and when they have arrived in t
temperate regions of the southern hemispher
they have at various geographical epoc
starved out, taken the place of, or literal
"supplanted" the native southern flora, whi
in every case has been formed on a narro
restricted and peninsula-like area. The sa
greater "potency" has led to the inevita
survival of the animals of the larger area, wh
brought into contact with the animals of t
small and restricted area. "Applying the
principles to New Zealand, we see that
country, no area of land, could have a wor
chance for the survival of its animal a
vegetable children, than that mysterious lan
isolated for many millions of years in t
ocean, the home of the Tuatera, solitary su
vival of an immensely remote geologic age, t
undisturbed kingdom of huge birds, so eas
going that they have ceased to fly, and ha
even lost their wings!'

Is there not here surely a lesson f
man; that the kingdoms of the earth wishing
survive must maintain a fighting capacity?
will be said at once that the point of view
Sir Herbert Maxwell's question is not the sa
as that referred to above. In the first ca
transfer of stock by the hand of man is unde
stood, while in the second the workings
nature alone are in question, but there is,
think, an interesting parallel from the first th
results are the same.

It may, perhaps, be suggested in this conne
tion that while the easy-going birds of N
Zealand were losing their wings, the plant
even the highly organised Compositae, were a
least failing to acquire the adaptability th
would enable them to live beyond the limit
tions of their own original home. *R. Irwi*
Lynch, V.M.H.

NOTES FROM WISLEY.

A wild garden is a comforting possession in se days of enforced economy, and many un- isfactory conditions may be excused by the t that it is a wild garden. Even so, a good peting medium is most desirable since flowers w up to a greater advantage against a green kground than against the bare earth.

The wild garden at Wisley rejoices in a luxu- nt growth of Mosses. Through this soft carpet umerable leaves of spring-flowering bulbs now forcing their way; already flowers have peared, and the Moss is starred with Nar- sus cyclamineus, and with Snowdrops and cuses. Contrasting with this vivid green pet is a little colony of Schizocodon soldanel- des, which stands out because of the crimson e which its leaves assume at this time of ar

ther plants attractive in the wild garden at present time are the Whortleberries (Vac- ium Myrtillus) with their fresh green stems, d self-sown seedlings of Pernettya mucronata ich still retain their shining berries, ranging m a soft pink to dark red.

Another handsome berried shrub, but larger d of more recent introduction, is Cotoneaster otina. This Cotoneaster has comparatively ge, ovate-lanceolate leaves, and many loose nches of brick-red fruits which remain for a g time on their long, green stalks. This nt received a Certificate from the Royal Hor- ultural Society under the name of C. glauco- ylla. It is interesting to observe that Ber- is japonica var. hyemalis not only bears its eetly scented, yellow blossoms, but still re- ns the autumnal colouring of its foliage.

n the rock garden some of the early bloom- , dwarf Rhododendrons are in flower, such as praecox and the smaller flowered R. dauri- n. Several early flowering Irises are also to seen, including I. histrioides, I. Bakeriana d I. reticulata. The dwarf variety of the ter, known as var. Krelagei, is flowering, the ves of which are not visible until the almost sile flower is over.

Numbers of Saxifrages, belonging chiefly to Kabschia or "cushion" group, are in wer both out in the open and in the Alpine use. A nine-inch pan of Saxifraga burseriana . Gloria is remarkable in that it bore no ver than one hundred white blossoms, fully panded. The variety S. burseriana crenata, ugh less floriferous, is a delightful plant and ite distinct by reason of the wonderfully neat nation of the margin of the corolla.

ther Saxifrages of the Kabschia group or bschia strain now in flower are S. Paulinae d S. Faldonside, with pale yellow flowers, S. ingii. S. Boydii, and S. Ferdinandi-Coburgii, a deep yellow colour, and perhaps most attrac- e of all, S. lilacina. Although the leaf settes of this beautiful little plant are but e-eighth of an inch in diameter, the flowers en measure as much as half an inch across.

Another section of the Saxifrages known as Engleria group is also well represented. ost of its members are red or pink flowered, ch as S. Frederici-Augusti, S. Griesbachii and media, all of which are in bloom; also S. otschyi which, with the exception of S. luteo- idis, is the only yellow-flowered example to found in this group. There are several well- own hybrids between the Kabschias and glerias, such as S. kewensis and S. Suende- nanii, which are both curious and interesting nts.

A pleasing feature of the Alpine house is the tural and characteristic habit displayed by the ants, some of which it would be difficult to entify with the forced specimens frequently en at exhibitions.

The alterations in front of the laboratory at isley are being continued and a broad walk being made from the main doorway towards e rock garden, which necessitates considerable tting into the existing bank of rock-work. e position of the glass-houses, however, makes possible a satisfactory garden picture. Pro- ess is also being made with the new Rose rden and large numbers of bushes have already en planted. *J. E. J. White.*

NOTES FROM GLASNEVIN.

Many anomalies are apparent this year in the flowering of outdoor plants. Why, for instance, should Chimonanthus fragrans have been almost flowerless, while Prunus Davidiana has never before been so good? Although in no way related, they respond to a sunny season in the matter of ripening their wood and producing flowers. Last summer did not seem favourable to ripening, and no surprise was felt at the failure of the Winter Sweet, but the display made by the Prunus, aided by the absence of frost, was indeed a welcome surprise.

Again, Iris unguicularis last year was abnormally fine, yet this year very few flowers have been produced, although some are now appearing on the variety lazica; while we have rarely had such a wealth of bloom on Iris reticulata, which is planted in different positions. Iris Histrio and I. histrioides have not flowered at all, yet I. sind-pers and I. sindja-reichi are both in flower at present.

One of the most charming shrubs now in flower is Prunus dehiscens, a round, twiggy bush some 5 ft. high and as much through, the leafless twigs bearing abundance of large, shell-pink blossoms. Interesting, too, is Viburnum nervosum, flowering for the first time. The flowers are borne in sessile clusters on short side shoots, and are pink in colour, with a sweet Daphne-like scent. Our plants were raised from seeds presented by Mr. A. K. Bulley, who got them from Bhutan, where the plant grows in the Conifer forests at 12,000 ft. altitude. The white Daphne Mezereon is a delightful shrub; it grows here freely, sowing itself and coming true from seed. The purple form, considered the type, almost refuses to grow at Glasnevin, yet in the Trinity College gardens at Ballsbridge, a fortnight ago, many large bushes of it were smothered in flowers. Ribes laurifolium bears pendant racemes of pale, greenish-yellow flowers quite attractive at this season. Here it does best grown against a wall. The flowers are unisexual, borne on different plants, and to get the fleshy fruits artificial pollination is necessary.

Rhododendrons continue to be represented by R. moupinense, in different positions, while R. oreodoxa is already showing colour.

Many rock garden plants are rapidly developing their flowers, but the soaking rains are not conducive to their lasting qualities. Saxifraga burseriana tridentina is one of the most satisfactory of the Burseriana section, a free grower bearing abundantly its large, pure white flowers. Primula Inayatii (Fig. 59), raised from seed received from Kashmir some years ago, has been flowering freely of late. Though not strikingly attractive from a decorative point of view, it is nevertheless of more than ordinary interest at this season, and is not without beauty in its umbels of pale lilac flowers. The Satin Flower, Sisyrinchium grandiflorum, old and well-known in gardens, is always admired. It likes a stiff, moist soil and resents disturbance

In an earlier note I alluded to that fine Snowdrop, Galanthus Elwesii, always the earliest to flower, but among all the species and forms of Snowdrops grown here, I give the palm to G. plicatus Digby's variety. Of vigorous growth, producing broad, glaucous leaves, it bears the flowers on stout scapes well above the leaves; the blooms are as large as those of a good Elwesii, and of what one may call perfect Snowdrop form. This fine variety came to Glasnevin through the good offices of Mr. E. A. Bowles, who recommended it to Sir Frederick Moore, and a supply was soon procured from the Rev. C. Digby, from his Lincolnshire garden. It may not be generally known that Snowdrops "move" best just when they have passed out of flower. We have proved this over and over again at Glasnevin, and always find that the bulbs re-establish themselves at once and flower the following year, while "dry" bulbs bought in the usual way take years to become vigorous. The Snowflakes, like Snowdrops, are good this year. Leucojum vernum is flowering freely, and also the varieties carpaticum and Vagneri.

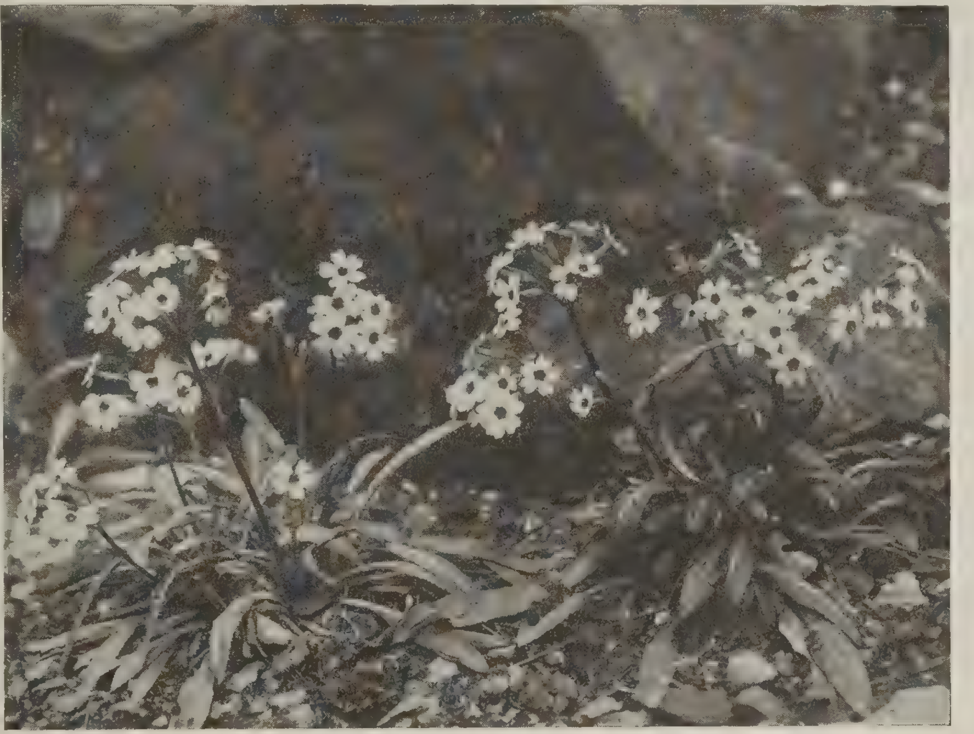

FIG. 59.—PRIMULA INAYATII IN THE ROCK GARDEN AT GLASNEVIN.

The most striking plant at present in flower under glass is Solandra grandiflora, recently recorded as flowering at Cambridge. When given too much root room the plant is inclined to grow vigorously without flowering, but when the roots are confined in a pot, the water supply regulated, and the main shoots suitably "stopped," the flowers are freely produced from short laterals. The large, greenish white corolla, 7-8 inches long and half as wide at the mouth, has the lobes undulate and rolled back. This is without doubt one of the finest members of the Solanaceae.

Columnea magnifica, with its brilliant orange-red flowers from the leaf axils, always makes a good display, attracting attention from those who prefer ornamental plants apart from botanical interest. Begonia trigonoptera is a comparatively recent introduction from South America, and has somewhat the aspect of B. heracleifolia, having stalked, deeply-lobed leaves and tall flower stalks bearing many rather small, pink flowers.

Trevesia palmata is a handsome foliage plant from India, well enough known in Botanic Gardens, but probably not now much grown elsewhere. The large palmate leaves with irregularly lobed segments are the plant's chief attraction. The umbels of greenish-white flowers, in character much like other members of the Araliaceae, are of no special interest. Clematis florida is a beautiful and interesting greenhouse plant, though capable of cultivation in the open under favourable conditions. The comparatively large, creamy-white flowers, with a central boss of purplish staminodes, are of more than ordinary beauty and quite as good as many modern hybrids.

Orchids are still much in evidence, the numerous hybrid Cypripediums flowering over a long period. Others of interest are Masdevallia peruviana, Maxillaria dichroma alba, M. porphyrostele, the Javanese Coelogyne sulphurea, C. intermedia and C. cristata in variety. Dendrobium Hedyosmum from Burmah is a charming little species, bearing delightfully sweet-scented small flowers at the ends of the pseudo-bulbs. Other Dendrobiums include D. nobile Sanderiana and various hybrids. *J. W. Besant, Glasnevin.*

HARDY FLOWER BORDER.

PULMONARIA ANGUSTIFOLIA AZUREA.

THE true Pulmonaria angustifolia azurea (see Fig. 60) is one of the purest and sweetest of the blue flowers of spring. The blooms are borne in twin-heads, each division carrying five or six flowers, but the great charm of the plant lies in the quality of its beautiful, clear blue flowers. There is no purple or pink in the petals; indeed, no colour other than the purest blue except for the buds, which are purple before they unfold. When fully expanded the flowers are about half an inch across. The plant grows no more than 6 or 9 inches high, and there is no spotting on the leaves, which are covered with soft, downy hairs. From this brief description it will be observed that this plant differs from our native Blue Cowslip (P. angustifolia), the flowers of which are at first pink, and afterwards turn bright blue, while the leaves are faintly spotted with cream, in two rows. The variety azurea is a great improvement on P. angustifolia, which is often erroneously sent out as azurea. To distinguish clearly between them the true azurea is now known in the trade as Munstead variety. This blue form is not common in gardens, though it has been grown at Munstead Wood for many years. The flowers open outdoors in March and April, and remain open for many weeks. At Munstead, where so many hardy flowers are grown to good purpose, this Pulmonaria is used as an edging to garden paths. Every third year the plants are taken up and divided after flowering, usually in late May. *Herbert Cowley, Tunbridge Wells.*

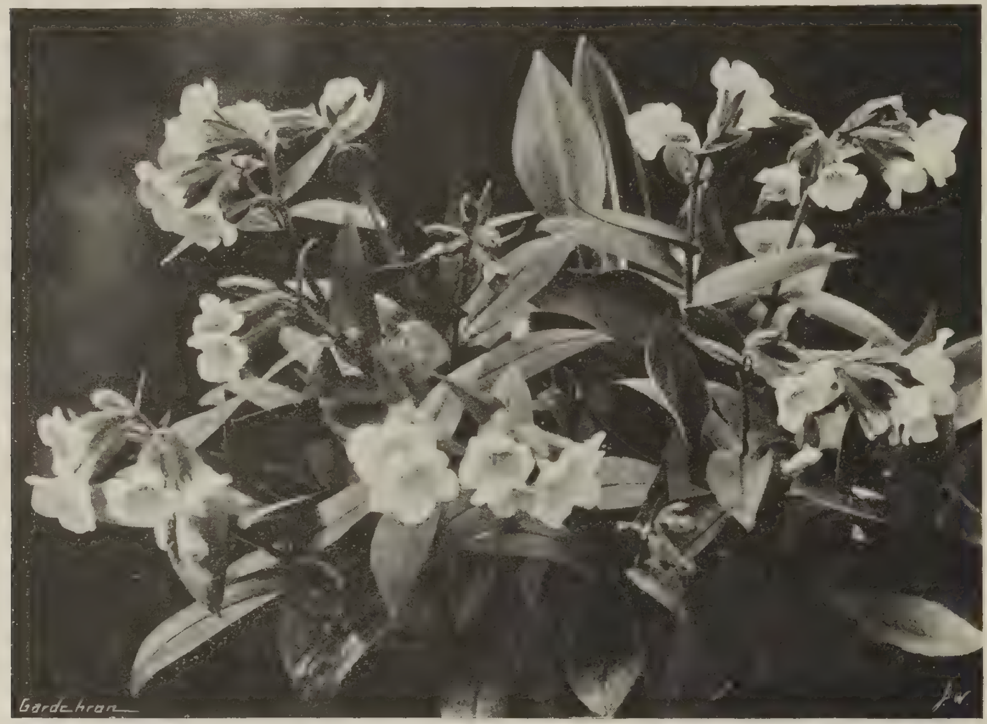

FIG. 60.—PULMONARIA ANGUSTIFOLIA AZUREA.

LYCHNIS CHALCEDONICA.

LONG cultivated in British gardens, Lychnis chalcedonica has held the field wonderfully well, when we consider what numbers of charming new flowers have been introduced and how many others, once held in esteem, have been relegated almost to oblivion. The Jerusalem Cross, as it is commonly called, remains a favourite with those who cultivate it and do it justice by supplying it with its few requirements. It enjoys a rich soil, and if afforded this and plenty of manure, it will tower boldly up in the border to three feet or more in height, and will create a showy effect with its heads of bright scarlet flowers, which last a long while in perfection and hold their own among other border flowers.

The plant is easy to propagate by division in autumn or spring, and the single variety may be raised from seeds with the same ease as are the most obliging of hardy flowers. Besides the typical single scarlet form, there are at least two or three others in cultivation. I have heard of another—a pale red one—but it has never come within my observation. A white variety with single flowers is appreciated by some, but it has not the bright effect of the scarlet type.

Seeds of this white variety are offered by seedsmen, but will hardly come absolutely true. The double scarlet variety is a notable flower which has for many years been a great favourite. It can only be propagated by division or cuttings. It is a splendid border flower. A double white sort was formerly in cultivation, but I do not think that it is offered now. *S. Arnott.*

HORTICULTURE AT THE BRITISH EMPIR
EXHIBITION.

IT was evident at the two meetings of hort
cultural traders held recently in London, one
the Board of Trade on January 30, the othe
at the hall of the Royal Horticultural Societ
on the 13th instant, that the great purpose
the British Empire Exhibition to be held
Wembley Park in 1924 is not grasped. Th
Exhibition was "designed to furnish a displa
of the natural resources of the various countri
within the Empire, and the activities, industri
and social, of their peoples." At Wembley Par
arrangements are being made on a scale whic
will enable this to be done. The resources
every part will be mutually displayed ther
Producers will find markets, markets will fin
producers. Sufficient progress has been mad
already to satisfy the management of the E
hibition that the whole Empire, commerciall
speaking, will be at Wembley. Our overse
Dominions, Colonies and Dependencies are pr
paring for a display of their products to
extent that has already exceeded all expect
tions. There is every prospect that this Exh
bition will surpass in magnitude and interest
others ever held in this country, and that it wi
afford opportunities for trade development th
have never before been attempted.

So much for the Exhibition generally. B
how does the project appeal to horticulturis
generally, and to the horticultural trade in pa
ticular? Preparations are being made on
elaborate scale which will afford exhibitors
every department of the industry a splendi
chance of demonstrating how the United Kin
dom stands with respect to horticulture. Th
it occupies an important position among t
great industries of the country is abundantl
evident. Have we sufficient enterprise to sei
the great opportunity which the Exhibition wi
afford to inform the world what horticultu
means to us, and what our plant breeders a
growers are in a position to supply? The obje
of the Exhibition is to enable them to do th
on a scale that has never been attempted b
fore. At the great International Exhibition he
in Hyde Park in 1851, horticulture was scarce
represented, notwithstanding the fact that S
Joseph Paxton was on the executive. No su
oversight will take place at Wembley in 192
if the facilities provided there at very conside
able outlay by the Exhibition management a
made adequate use of.

The Horticultural **Committee** is composed
sixteen representative men, Mr. William Cut
bertson being chairman, and potential exhibito
may rest assured that the efforts of this com
mittee are on very commendable lines. A su
committee looks after the interests of sundrie
men, including horticultural builders, machi
makers and engineers, and it is intended
appoint a Press Committee for publicity pu
poses. A hundred leading men, includin
amateurs, traders and scientific workers, hav
accepted an invitation to form a Horticultur
Council, with Lord Lambourne as president.

Although the Royal Horticultural Society do
not appear to be willing to hold the May Exh
bition in 1924 at Wembley, instead of at Che
sea, I feel sure the Society has the interests
the British Empire Exhibition at heart, an
that the Council intends to take an active pa
in the efforts being put forward to make horti
culture at Wembley a big success. This is
it should be, and I hope the other societies wi
also co-operate in the same spirit. The pe
manent features, such as formal and rock ga
dens, the beds and borders of shrubs, Roses
hardy herbaceous, perennials, etc., will be add
tional to the special exhibitions which the ma
agement desire to hold at Wembley. It is als
hoped to provide exhibits of growing fruit trees
showing correct methods of planting, prunin
and training, and plots of vegetables under th
control of expert cultivators.

Another unique feature will be provided b
India, the Dominions and Dependencies, wh
intend to have gardens furnished with strikin
decorative and economic plants representative
their vegetation and their agri-horticultura
industries. These gardens will occupy ar

joining the exhibition halls of the respective minions, etc., and should be of considerable raction and interest. The plants for these plays are being specially prepared in their erseas homes, and they will be supplemented others obtained from nurserymen in this ntry.

The circular letter published in the *Garners' Chronicle* last week gives particulars as the lay-out of the Horticultural Section at embley, which will occupy about 10 acres in favourable position with respect to accessiity and the grounds generally. Considering period of the Exhibition, from April to tober, the charges for space are not excese. Special shows would be held in large marees erected on a site adjoining the Horticulal Section. The profits made by societies en their shows were held elsewhere will be aranteed by the Exhibition authorities. Some rserymen have notified their intention to intain a continuous display of indoor plants specially erected greenhouses. In conclusion, eel certain that if British horticulturists make best of the opportunities which this great hibition will provide, horticulture will be the atest attraction of the many that will be up at Wembley. *W. W.*

VEGETABLE GARDEN.

ASPARAGUS.

The advice on page 80 as to the best method preparing Asparagus beds reminded me of plan which occurred to me some years ago, t which I have not yet had an opportunity carrying out. I intend, however, to try it soon as I have a garden again of my own, ndeed that happy time is ever coming.

We all know the appearance of the usual paragus bed when the growth is fully veloped in summer. The plants are crowded gether by seedlings which have appeared since original plants were put in position, and is no longer possible to distinguish each one a separate individual. The result in the lowing spring is a crop of thin weak shoots d few of the fine fat sticks that gardeners uld like to be able to show.

But how is this state of things to be avoided? edlings seem to be accepted as a necessary il in Asparagus beds. Every gardener knows e difficulty of deciding when to cut down the nts in the autumn. He knows that the ger the stems are allowed to remain the onger will the crowns be and the stronger the ung growths in the following spring. He o knows that if the stems are left uncut til they turn yellow, the seeds are bound to l about, and it is not always easy to make tain the following year that no seedling is owed to grow up among the stems of the rmanent plants.

Nature, however, has given us a remedy for is evil, for Asparagus officinalis is a dioecious nt, and each individual is either male or nale. All we have to do, then, is to raise r plants from seed and to destroy or give ay all the female plants. Obviously, if only le plants are grown, there will be no seeds fall about and give rise to seedlings. If ung seedlings are well treated, they ought to wer in their first, or at any rate in their cond, year. A little close observation with a ns will then show the difference between the o sexes, and all the female plants can either pulled or dug out at once, or marked for moval in the following April.

At first sight it might seem unfriendly to er the female plants to a friend at a disnce, but presumably, if he had no other sparagus plants, they would remain untilised and produce no seed!

There is one other point. Asparagus does not e either transplantation or overcrowding. No ant in the usual Asparagus bed grows with e vigour of the self sown seedling, which has anted itself in a position where it has ample om to develop.

Seed is cheap compared with plants, and my advice would be to prepare beds of fertile soil and then sow seeds thinly in drills three or even four feet apart. The young plants should be thinned out till they stand a few inches apart, and should then be encouraged to make rapid growth by frequently hoeing the surface, and by giving occasional light dressings of nitrogenous manure. Then when the flowers appeared late in the summer, it would be hard luck if male seedlings could not be found which would stand three or four feet apart in every direction. All the others should be removed immediately, and those that were left should be treated and maintained as individual plants. Then, provided that the seeds of a good variety had been obtained from a reliable source, there should be no difficulty in growing those large fine sticks of Asparagus which seem to be almost the monopoly of French market gardens. The method advocated is not so rapid as the planting of purchased three-year-old plants, but the result in the long run should be infinitely more satisfactory. *W. R. Dykes.*

FORCING CAULIFLOWERS.

Cauliflowers are amongst the easiest of vegetables to force, and are much appreciated at a time of the year when other vegetables are very scarce, namely in April and May.

I have just planted a house with 700 Cauliflower plants raised from seed sown in September in a cold frame. As soon as the plants were large enough they were pricked out into boxes filled with sifted loam mixed with old mortar rubble or lime. One of the chief points to observe is not to coddle the plants, but to grow them in as cool conditions as possible. In November they will be ready for potting in small pots filled with similar soil as before. A good plan is to grow them at this stage on shelves in the fruit houses, which are ventilated day and night, except when it is freezing.

In January, as soon as the Chrysanthemums are finished, we make a warm bed of leaves and manure, cover it with soil 7 or 8 inches deep, then plant the Cauliflowers from pots. Between the Cauliflower plants I grow Radishes and Spinach, which are ready for use before the Cauliflowers require all the space. (I made 1s. 6d. each for the heads in April, 1922.)

I always try to get this crop finished early, in order to plant a crop of Cucumbers or Melons on the same beds.

A house of Cauliflowers in April here is a good thing to see, also to have, as we cannot produce much in the kitchen garden after October or before July, but by careful management I have had Cauliflowers over a period of very many months.

The latest crop we lift with large balls of soil in October and place the plants in cold frames, protecting them from frost only.

I am certain that this method would be successful in some parts of England. Dig up the plants with a good ball of soil, say, in December, and pack them as closely together as practicable in a sheltered place. Cover them with straw or Bracken in severe weather. They will form good heads, and may be taken in any quantity at a time to a warmer place to prolong the season of cropping. I have had nearly all my Broccoli crop completely spoiled by frost in the South-West of England, even, but by the method described nearly all the plants will be saved, while the ground on which they are grown may be dug or ploughed in the winter, this being of benefit to the succeeding crop. Another point is that by lifting the plants and laying them in the ground, sappy growth, which is very detrimental to Broccoli in a severe winter, is prevented. *James Page, Sweden.*

The Earliest Peas.—In a trial of Peas conducted by Messrs. Kelway and Son, to test their order of cropping, the variety First and Best matured pods earliest, followed by Eclipse or Earliest of All, one day later; Ideal, three days later; Early Somerset, seven days later; and American Wonder eight days later.

HOME CORRESPONDENCE.

Hardy Heaths.—In my article on Heaths (p. 90) an error has inadvertently crept in. It is stated, in writing of E. Mackayii, that there is "also a double form of E. ciliaris known as E. Maweana." What I meant to have written is that there is a double form of E. Mackayii; E. Maweana is, of course, a single variety, but whether it is a hybrid or a form of E. ciliaris there seems to be some doubt. If the latter, it is larger flowered and better coloured than the type species. *A. T. Johnson.*

Cirsium eriophorum.—In my illustrated note on this handsome Thistle (*Gard. Chron.*, October 14, 1922), it was briefly stated that Dr. Petrak, of Czecho-Slovakia, calls the English form sub-sp. anglicum. A second letter from him has at last arrived. In it he states that the ample material sent him last autumn agrees with the only English specimen he had previously seen, and confirms his belief that "the C. eriophorum that occurs in England is certainly different from the forms found on the Continent; a good and easily distinguishable race; from [? by] the structure of the scales of the involucre and the size and shape of the flower-heads." Dr. Petrak's Monograph on the genus Cirsium is not yet published, it having been delayed by the war. *H. S. Thompson.*

Failures with Plants.—Sir Herbert Maxwell's notes on the many rare and interesting plants that he grows in his favoured garden at Monreith always prove a source of great delight to me. Sir Herbert's knowledge is so varied and extensive that one never fails to learn much that is new, and it is rarely indeed that the opportunity occurs for filling in a blank. I wonder if his account on pp. 36 and 37 of a few failures has given me one of those rare opportunities; if so, I shall be gratified. Most of the species to which he refers have never even been tried by me, but I have grown some of them. Of these, Dicentra spectabilis must be regarded as established and happy here. In one place in this garden there is a good-sized patch of it; I do not know how long it has been there, but it was large and flourishing when I came here in 1920, and is doing very well. It is in a distinctly shady spot, amongst well-grown shrubs—Rhododendrons, etc., and gets but little direct sunlight. I know of another clump planted below the window of a house on its N.N.E. side. It flourished for years to my knowledge, being gay for months each year, although a more discouraging situation could scarcely be imagined. I wonder if Sir Herbert has treated his plants too well, or put them in too sunny a position. I know of another place where the species thrives in a shady, woodland walk, amidst a mass of Blue Bells. With Gentians I have never done much good, but I once had a measure of success which may possibly afford a hint worth following. When in Switzerland years ago, before I had become especially interested in rock and alpine plants, I collected some plants of G. verna. I dug them up from a meadow, and each plant was a tiny thing with but a single stem in most cases. On reaching home, the smallness and feebleness of the individual plants so impressed me that I carefully gathered them together, as one might a bunch of Violets, and planted them, about 30, perhaps, all told, as one plant. I put them into a ridiculously unsuitable spot, a dry bank where birds enjoyed dust baths in summer, and they flourished! They spread into a fine clump, about half a square foot in size; flowered freely in spring and a little all the year round, and were a joy for a few years, until there came a year of drought—1911, I think—and I lost them. Of course, at home G. verna would grow packed tightly in a dense tuft, but we are not likely to succeed in similar conditions here; my bunching of these tiny plants, however, gave them somewhat similar packed condition, and perhaps, therefore, anyone who is fortunate enough to have sufficient plants to test the method, might also find planting them in a tight bunch a success, as it proved to be in this one case. *Calbran J. Wainwright, Daylesford, Handsworth Wood, Birmingham.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, February 15.—*Present:* The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, A. Burns, J. Birchenall, A. Coningby, D. A. Cowan, A. T. Cussons, J. Cypher, J. Evans, A. Hanmer, J. Howes, J. Jackson, W. M. Jackson, A. Keeling, D. Losh Thorpe, J. Lupton, D. McLeod, F. T. Paul, F. K. Sander, G. W. Thompson, J. Whitham and H. Arthur (Secretary).

First-Class Certificates.

Miltonia Reine Elizabeth var. Roi des Belges. A well formed flower with petals and dorsal sepal heavily blotched with crimson-purple; the large lip is pure white and striped in the centre with rosy-brown. From Mrs. Bruce and Miss Wrigley.

Odontioda Mulatto. A pleasing variety with rich madder-brown flowers. From S. Gratrix, Esq.

Vuylestekeara Rutherford's Sylvia (*Miltonia Bleueana* × *Odta. Joan*). A very distinct variety, the whole of the flower being coloured rich purple. From Col. Sir J. Rutherford, Bart.

Cypripedium Eurybiades var. The Baroness. The dorsal sepal of the well-set flower measures four inches across, and is beautifully spotted, with a deep, white margin; the petals measure 1¾ inch across, and are coloured rich reddish-brown; the lip is of even colour. From Baron Schroder.

Awards of Merit.

Cypripedium Admiral (*G. F. Moore* × *Beryl*); *Cyp. Icarnus West Point var.*; *Odontoglossum crispum Olympe*; *Dendrobium nobile Sir G. W. Moore* and *Odm. Dodeham Prince of Orange.* From S. Gratrix, Esq.

Odontoglossum Agapetum var. Brunette; *Odm. Adula var. rubens*; *Odm. Aireworth Beardwood var.*; *Brasso-Cattleya Vilmoriniana Rutherford's var.* From Col. Sir J. Rutherford, Bart.

Odontioda Mary Gratrix. From Mrs. Gratrix.

Cymbidium Schlegelii var. rubrochilum. From A. T. Cussons, Esq.

Cypripedium F. M. Ogilvie var. Conyngham. From Dr. Craven Moore.

Cypripedium Pioneer var. Alpha (*Zoe* × *Desdemona*). From P. Smith, Esq.

Groups.

S. Gratrix, Esq., West Point (gr., Mr. J. Howes), staged a collection of Orchids, for which a Gold Medal was awarded.

A Silver-gilt Medal was awarded to A. T. Cussons, Esq., Prestwich (gr. Mr. F. Cookson), for a group.

Capt. W. Horridge, Bury (gr., Mr. A. Coningby), staged a collection of cut Orchid blooms, and was awarded a Silver-gilt Medal.

Large Silver Medals were awarded to Mrs. Bruce and Miss Wrigley, Bury (gr., Mr. A. Burns), for a group comprised principally of Lycastes of the Skinneri section; to Col. Sir J. Rutherford, Bart., Blackburn (gr., Mr. J. Lupton); and to Messrs. J. Cypher and Sons, Cheltenham.

J. Whitham, Esq., Crompton Hall (gr., Mr. E. Greaves), exhibited a group of Cypripediums, and was awarded a Silver Medal.

A collection of photographs of Cypripediums in natural size was exhibited by B. J. Beckton, Esq., for which a Silver Medal was awarded.

READING AND DISTRICT GARDENERS'.

The fortnightly meeting of this Association was held on the 14th ult. Mr. A. H. Fulker presided. The subject for the evening was "Garden Roses," and the lecturer was Mr. A. J. Cobb, of Reading University College. An excellent and prolonged discussion followed the lecture. A prize presented by Mr. J. Wynne in a competition for three plants of Cyclamen, was won by Mr. W. Broomfield, Cliffe House Gardens, Mapledurham, with growing plants carrying splendid blooms and foliage. In the non-competitive section, Mr. E. Blackwell, Foxhill Gardens, was awarded a First-Class Certificate for plants of Primula malacoides, and a similar award went to Mr. M. Goddard, Bear Wood Gardens, for splendid blooms of Cheshunt White, Mme. Oberthur and Helena Stevens Chrysanthemums. Mr. F. Townsend, Hillside Gardens, staged some excellent sticks of The Sutton Rhubarb, and Mr. T. B. C. Udale some highly coloured sticks of Rhubarb pulled from one-year old plants. Six new members were elected.

ROYAL HORTICULTURAL.

February 27.—The bleak weather outside the R.H.S. Hall was in marked contrast with the spring-time effect inside. Visitors were numerous, and the hall was comfortably filled with exhibits of Orchids, Cinerarias, Daffodils, Tulips, Rhododendrons, Azaleas, Alpines and Carnations. A few interesting novelties were brought forward, and it was cause for pleasure that two of these were exhibited from Kew and from Oxford Botanic Gardens. If exhibits were made by other botanic gardens and public gardens, they would add greatly to the interest of the meetings.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), C. J. Lucas, Arthur Dye, S. W. Flory, H. G. Alexander, J. E. Shill, J. Cypher, Fred. K. Sander, A. McBean, Henry H. Smith, T. Armstrong, G. F. Moore, H. T. Pitt, E. R. Ashton, W. J. Kaye, Stuart H. Low, J. Wilson Potter, R. Brooman White, and Chas. H. Curtis.

First-Class Certificates.

Cymbidium Alexanderi var. Rosalind (*insigne* × *eburneo-Lowianum*), from Lt.-Col. Sir Geo. L. Holford, Westonbirt, Tetbury (gr., Mr. H. G. Alexander). Cymbidium Alexanderi, in its many varieties, as raised at Westonbirt, is still the leading Cymbidium, and the variety Rosalind is one of the finest and most distinct. The plant bore two spikes, with altogether twenty-one flowers of large size and model form; they are blush white with darker veining, the lip having a rose tinge in front and rose spotting.

Cymbidium Auriga (*Alexanderi aurantiacum* × *Excelsior*), from Messrs. J. and A. McBean, Cooksbridge. The very fine plant bore two spikes of six and eight large and finely formed flowers respectively. The blossoms are of wax-like substance, cream white, tinged with Primrose-yellow and with a band of light reddish markings on the front of the lip.

Awards of Merit.

Odontioda Colinge var. Rosemary (*Odm. crispum The Baron* × *Oda. Coronation*), from J. J. Bolton, Esq., Claygate Lodge, Claygate (gr., Mr. S. Lyne). Flowers large and of fine form, coloured deep claret red with a white blotch at the tips of the petals; the front of the lip is white blotched with rose.

Odontioda Rufus var. Wickham Beauty (*crispum* × *Oda. beechensis*), from G. W. Bird, Esq., The Manor House, West Wickham (gr., Mr. Redden), the finest of the several forms of Oda. Rufus raised by Mr. Bird. The flowers were formed like a good Odm. crispum, the inner two-thirds of the sepals and petals deep claret red, the tips and broad margins white. The lip is white in front, marked with purple in front of the yellow crest.

Cypripedium Senator (*Gladiator* × *Lord Wolmer var. Duke of Marlborough*), from Messrs. Flory and Black, Slough, a very distinct Cypripedium of the C. Beekmanni class. The large, circular dorsal sepal is pure white, evenly spotted with dark claret. The lip and petals are yellow tinged with chocolate.

Groups.

Messrs. J. and A. McBean, Cooksbridge, were awarded a Gold Medal and general Cultural Commendation for a magnificent group, every specimen in which was grown and flowere in the best manner. Odontoglossums and Cy bidiums were chiefly at the back and each e of the group, the main part being artistical furnished with fine Odontoglossums, scarl Odontiodas, white Cattleyas and Laelio-Cattleya Among the mass of fine examples specially not worthy were Odontoglossum Melpomene, of ri colour, contrasting well with the white crispum Alabaster, of model form, and t violet spotted O. Gorizia (Jasper × Preside Poincaré). Among the Cymbidiums was grand plant of C. Alexanderi album, for whi Messrs. McBean had previously obtained First-Class Certificate. Good specimens of t best white Cattleya Trianae alba and C. inte texta alba were arranged with scarlet Odo tiodas, several with over forty flowers. T fine Oncidium McBeanianum, with its lo trailing sprays of large flowers, was ve effective.

H. T. Pitt, Esq., Rosslyn, Stamford H (gr. Mr. Thurgood) was awarded a Silver-g Flora Medal for an excellent group in whi were several superb novelties, the finest bei the large Odontioda Cardinal, which had p viously obtained a First-class Certificate, o of the very finest of the rich cardinal-red form and the beautiful Miltonia Bleuana Queen Eli beth, a model flower in which the great featu is the vinous purple colour of the petals. So fine white forms of Odm. crispum were al staged, with richly coloured hybrids a brilliant Odontiodas; also a selection of De drobiums, both hybrids and species, and t sprinkling of rare species usually to be se in Mr. Pitt's group.

Messrs. Cowan and Co., Ltd., Southga staged a well arranged group of rare hybri in which two fine and very dissimilar forms their new Laelio-Cattleya Dodona were intere ing exhibits. Their strain of Cattleya Tity showed to advantage, and Laelio-Cattleya Os and other Laelio-Cattleyas were included in t group, with good Odontoglossums, Odontiod and Dendrobiums. A richly coloured form Odm. illustrissimum was specially noteworthy.

Messrs. Stuart Low and Co., Jarvisbro Sussex, were awarded a Silver Flora Medal a pretty group of Odontoglossums, Odontiod Dendrobiums and Cypripediums. A pre novelty in the group was Potinara Lo (Lowiara insignis × L.-C. Luminosa), a ve bright and well-formed flower of vermilion with a gold shade, the well-rounded lip bei rose-purple and having white lines running fr the base.

Messrs. Sanders, St. Albans, were award a Silver Flora Medal for a pretty group Dendrobiums, both hybrids and varieties D. nobile, the best of either section bei their D. nobile Our Prince. A good selecti of Cymbidiums, including the very pretty Cy bidium Martin, C. Pauwelsii and others, we well arranged with Odontoglossums and oth showy flowers.

Other Exhibits.

Pantia Ralli, Esq., Ashtead Park, Suss (Orchid grower, Mr. Farnes), showed the beau ful Brasso-Cattleya Albion (C. Trianae alba B.-C. Thorntonii alba), a large flower of mo form and pure white.

J. J. Bolton, Esq., Claygate, showed a ve finely coloured form of Odontoglossum Fabia.

Messrs. Flory and Black, Slough, staged selection of showy hybrids, including the pre Sophro-Laelio-Cattleya Flammea (S.-L.-C. E × C. Lawrenceana), and several good Cyp pediums.

Baron Bruno Schröder (gr. Mr. J. E. Sh showed splendid spikes of Cymbidium Pauwe The Dell Variety, part of the thirty spi borne on the plant now in flower.

Lt.-Col. Sir Geo. L. Holford, K.C.V.O. (Mr. H. G. Alexander) exhibited a fine pla of Cymbidium Martin, Westonbirt Variety, wi two spikes of fourteen flowers; also the yell Laelio-Cattleya Ilma.

Mr. H. Mariner, Kingston-on-Thames, show two forms of Cypripedium insigne of the Mau section.

Floral Committee.

Present: Messrs. Henry B. May (in the air), G. Reuthe, John Heal, W. J. Bean, W. . Bilney, Reginald Cory, Jas. Hudson, J. W. arr, J. B. Riding, R. W. Wallace, M. C. All-ood, C. R. Fielder, J. Jennings, W. Howe, H . Jones, W. B. Gingell, A. Turner, Chas. E. hea, C. Williams, D. B. Crane, W. P. Thom-n, Chas. E. Pearson, R. C. Notcutt, H. D. cLaren, Thos. Stevenson, G. W. Leak, W. B. ranfield, and W. G. Baker.

AWARDS.

FIRST-CLASS CERTIFICATE.

Arctostaphylos Manzanita. — A beautiful, ense, erect-growing shrub, with dark greyish-reen ovate leaves borne on stiff, upright stems. he flowers are pink or white, in small pendulous anicles, like little bells, and much resembling e flowers of an Andromeda, while the older ems have red bark, like that of Arbutus. A isitor described the plant as "an Arbutus ith Eucalyptus leaves." At Kew, this shrub rows and flowers freely, and one specimen has ecome almost a tree. Shown by the Director, oyal Gardens, Kew.

AWARDS OF MERIT.

Rhododendron strigillosum.—This interesting ecies has the merit of being quite hardy, but, course, being very early flowering, bad eather may sometimes spoil the flowers. In the ecimens shown, the shape and colour of the owers closely resembled those of a scarlet form R. arboreum, but the leaves are somewhat rrow, about six inches long, and the stems e clothed with rust-red, soft bristles, which ve the plant a distinct appearance. Shown Lady Aberconway, and the Hon. H. D. cLaren, Bodnant, North Wales.

Rhododendron ciliicalyx.—An exquisitely autiful Rhododendron, with large flowers of e purest white. It cannot be regarded as a rdy plant, but it is well worthy of the shelter a greenhouse or conservatory. It belongs to group of which R. Veitchiana may be re-rded as the popular member. The broadly panded flowers are about five inches across, d have a pale lemon yellow stain in the roat; they are also slightly fragrant. Shown Mr. W. G. Baker, Curator, Oxford Botanic rdens.

Saxifraga R. V. Prichard.—This fine en-usted Saxifraga is obviously of S. burseriana scent, as it is very like this species in habit d in style and size of flower. The latter, wever, are paper white with greenish base. e parentage of the variety was not given. own by Messrs. Maurice Prichard and ns, Christchurch.

GROUPS.

At the far end of the hall Messrs. Sutton and ns arranged an exceedingly effective collec-n of Cinerarias. They, wisely, resisted what ght have been a temptation to aspire after mass ect, and, by allowing ample room for each nt, gained in natural effect. In raised baskets ere were isolated such sorts as Forget-me-t Blue, a really charming variety; Superb arlet, an intermediate variety bearing goodly ads of intensely scarlet flowers of velvety tex-re, and beautiful pink shades. Besides these ge-flowered and intermediate varieties, the ller and very free-flowering Stellata varieties re equally well represented (Silver-Gilt nksian Medal).

Of necessarily more formal character was the hibit of Hyacinths by Messrs. R. and G. thbert. These were mostly in colour blocks such sorts as King of the Blues, Schotel, King the Reds, Jacques and Enchantress, and all of em were of excellent quality (Silver-Gilt nksian Medal).

A splendid display of colour was made by essrs. L. R. Russell, Ltd., with many riferous plants of Azalea mollis and A. indica rieties, Laburnums, Prunus and other shrubs ilver Flora Medal). Many forced bushes of burnum Carlesii were included in an effective hibit by Messrs. Wallace and Co., who also d various Brooms, Osmanthus Delavayi, and number of shapely Conifers (Silver Banksian dal).

Rhododendrons made a bright show. Messrs. R. Gill and Son set up an excellent little collection in which a score or more of the brilliant crimson R. Cornubia attracted a deal of admiration. R. argenteum was also well represented, and there were a few trusses of the beautiful blush Florence Gill. Associated with the Rhododendrons were several vases of inflorescences of Saxifraga cordifolia, while in another place Messrs. Gill and Son staged a collection of their excellent strain of St. Brigid Anemones and many dazzling blooms of Anemone fulgens. The former were of exceptional size—the individual blooms measuring as much as five inches across —and many good shades of colour were included.

Rhododendron blooms, particularly of R. arboreum roseum and R. pre-vernum, were included in a miscellaneous exhibit by Mr. G. Reuthe, who also showed various alpines and Hepaticas of interest (Silver Banksian Medal). —Azalea Hidomango, one of the most floriferous of the dainty Kaempferi type, was a prominent feature in an exhibit by Messrs W. Cutbush and Son, which also included vividly coloured blooms of Tulipa Eichleri. Adjoining this display they arranged an effective group of Azalea indica varieties with other forced shrubs (Silver Banksian Medal). Messrs. Moyses Stevens, Ltd., staged well-grown plants of Azaleas and a quantity of Hyacinths in distinct colours (Silver Banksian Medal).

Primulas and Primroses were included in many collections of hardy flowers. Mr. G. W. Miller had a great quantity of his excellent Polyanthuses, and double Daisies bearing immense flowers. In an effective group arranged by the Chalk Hill Nursery Co., Reading, there were many floriferous plants of the beautiful Primrose True Blue, which is of uncommon sky-blue colour. There were also pans of Cyclamen Coum rubrum of intense colouring in this interesting exhibit.

Many good clumps of the old favourite double mauve Primrose were included in a hardy flower exhibit arranged by Mr. F. G. Wood, who also had a fine strain of Polyanthuses and some well-flowered bushes of Daphne Mezereum. Primula Wanda, a deeper coloured and larger P. Juliae was shown by Messrs. Bakers, Ltd., and, although it did not receive an award. Primula Juliae Hector Goode, shown by Mrs. J. J. Goode, Galba Villas, Cirencester, has considerable merit. It is one of the largest of the varieties, and bears plenty of richly coloured blooms, which have a distinct velvety-crimson centre. Primula cashmeriana was well shown by Messrs. Carter, Page and Co., in their collection of spring flowering plants (Silver Banksian Medal).

Amongst the little rock gardens, that arranged by Mr. Clarence Elliott was very prominent in its restrained character and in the excellence of the plants employed to embellish it. Saxifraga Grisebachii Wisley var. was particularly good, while S. apiculata and S. Elizabethae made beautiful masses of yellow colour (Silver Flora Medal). Mr. W. Wells, Jun., included Saxifraga oppositifolia Latina in a collection of Alpines, and Messrs. R. Tucker and Sons gave prominence to the variety splendens, another good pink sort (Silver Banksian Medal). In a collection arranged by Messrs. Maxwell and Beale, there was a batch of Saxifraga oppositifolia 'Wetterhorn and especially well-flowered plants of Soldanella alpina.

A pretty little spring garden was made by Messrs. J. Cheal and Sons, who planted it with groups of the rich blue Pulmonaria azurea and other appropriate seasonable plants. A large rock garden built by Messrs. J. Piper and Son served well to display a great variety of shrubs and alpines, as well as a large patch of Myosotis Blue Bird (Silver Banksian Medal). There were many bushes of the early Rhododendron praecox in an exhibit by Messrs. Waterer, Sons, and Crisp, who also displayed Saxifraga A. J. Godseff with other alpines (Silver Banksian Medal). Mr. M. Prichard showed Oxalis splendens, bearing large salmon-pink flowers, in his collection (Silver Banksian Medal); and Messrs. Barr and Sons also staged many seasonable rock plants, with flowering sprays of Cydonia japonica varieties (Bronze Banksian Medal).

Carnations in quantity and of high quality were shown by various exhibitors. Mr. C. Engelmann had a large vase of the new Goliath; a soft salmon-pink perpetual of great size and with distinctly serrated edges. White Pearl and a dazzling vase of Improved Ward were also prominent among the many good varieties (Silver Flora Medal). Chief amongst the many varieties shown by Messrs. Allwood Bros. were vases of the brilliant Edward Allwood and the pale Fancy Chintz adjoining the richly-coloured Wivelsfield Claret. At one end of the collection there was a vase of especially good blooms of mixed Perpetual-Malmaison varieties (Silver Banksian Medal). Carnations were associated with Mimosas (Acacia Baileyana and other species) by Messrs. Stuart Low and Co. Amongst the Carnations, their scarlet variety Lord Lambourne and the greyish-heliotrope Fancy Arnos Grove attracted a deal of attention. A small collection of good Hippeastrums was also included (Silver Flora Medal).

Roses were displayed in moderate quantity by Mr. Elisha Hicks, who staged Mrs. Elisha Hicks, Premier, Gruss an Annchen, and other sorts. The last-named is a deliciously fragrant bloom suggestive of Gloire de Dijon. Violets were shown in considerable quantity by Miss Allen-Brown (Silver Banksian Medal) and Mr. B. Pinney. Both included a bunch of the uncommon pink-coloured Coeur d'Alsace, a free flowering and fragrant variety.

Narcissus and Tulip Committee.

Present: Messrs. W. B. Cranfield (in the chair), P. R. Barr, G. Churcher, G. W. Leak, H. Smith, Geo. Monro, W. Poupart, J. Jones, J. de Graaf, F. Barchard, R. W. Wallace and Chas. H. Curtis (hon. sec.).

AWARD OF MERIT.

Narcissus King Herald. An early flowering, long-stemmed, well-balanced, golden-yellow trumpet Daffodil that promises to be useful for market and for garden decoration. It was for its value for the latter purpose that the award was given. The flower is bold, well posed, and substantial, and suggests that King Alfred and Emperor may have been its parents. Shown by Messrs. Barr and Sons, Covent Garden.

GROUPS.

An imposing collection of Narcissus was arranged by Messrs. Barr and Sons, in which the large trumpet varieties were very prominent. Besides such excellent named sorts as Yorick, Alicia, King Alfred and Amynta there were a great many seedlings of much more than ordinary merit. The self yellow seedlings were all characterised by exceptional substance and deep colouring, and there were several bicolors of equal value. The collection also included two seedling Incomparabilis, which had large well-formed coronas of great brilliance (Silver-gilt Banksian Medal).

Facing the entrance Messrs. R. H. Bath, Ltd., made a beautiful show, with a large quantity of spring bulbs growing in ornamental bowls of fibre. These were mostly of commercial varieties of Hyacinths, Narcissus, and Tulips, and they illustrated how splendidly bulbs may be flowered by this simple and cleanly method (Silver-gilt Banksian Medal). An artistic display of spring bulbs with some Primula malacoides was set up by Messrs. Carter and Co. These were arranged in shallow baskets of good size, and amongst the many varieties of Tulip Prince of Austria was especially effective (Silver Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (in the chair), H. S. Rivers, S. B. Dicks, W. F. Giles, Geo. F. Tinley, Ed. Beckett, W. Bates, H. Markham, W. H. Divers, J. Harrison, W. Wilks, W Poupart, G. Woodward, E. Neal, T. Pateman, G. Reynolds, Owen Thomas, W. Lobjoit, H. V. Taylor, and A. N. Rawes.

There was very little business for this committee to consider. Two seedling Apples of no special merit were submitted for award. The late keeping Crawley Beauty was recommended for inclusion in the trial of commercial fruits at Wisley.

ASSOCIATION OF ECONOMIC BIOLOGISTS.

A meeting of this association was held on February 23, the president (Professor E. B. Poulton, F.R.S.) in the chair. Sir John Russell, F.R.S., delivered an address on "Partial Sterilisation of Soil." He stated that the discovery that partial sterilisation increased the bacterial activity of soil was, in the first instance, accidental, but when followed up it led to the conclusion that protozoa were present in the soil depressing bacterial numbers. Direct experiment proved the correctness of this view, and the protozoa of the soil are now the subject of important investigations at Rothamsted. A further deduction on the work on partial sterilisation was that certain soil bacteria have the remarkable power of breaking the benzene ring, decomposing such unlikely substances as benzene, toluene, naphthalene and phenol, and utilising them as food. These organisms are being thoroughly investigated in the bacteriological laboratory. Further, partial sterilisation kills or reduces disease organisms. Here, however, heat is the only certain agent; the various chemical substances have specific properties which render their general use difficult. A knowledge, however, of disease organisms to be suppressed and of the substances toxic to these organisms, allows the costly heating process to be superseded by the much cheaper chemical treatment. Owing to its technical importance, this subject is being carefully investigated.

Finally, partial sterilisation produces chemical changes in the soil, some of the products of which have important effects on the plant. Thus, on heating soil something is found which greatly stimulates root development. A full investigation is urgently needed.

The present position of partial sterilisation is that the process is used by the scientific worker to open up new fields of investigation, and by the practical grower to obtain larger and healthier crops as the result of the increased bacterial activity, freedom from disease organisms and the presence of the root-stimulating substances.

Mr. H. G. Thornton dealt with "The Destruction of Aromatic Antiseptics by Soil Bacteria." Since the original work on the partial sterilising action of toluene, the effect of a number of other antiseptics on the soil has been studied. These compounds fall into two groups. First, there are those whose action resembles toluene. Secondly, there is a large group of which phenol may be taken as an example. This group produces a sudden and great increase in the bacterial numbers in the soil, which, however, is only temporary and is not accompanied by any considerable increase in ammonia production. The effect suggested that organisms fed on this group of compounds.

Phenol, cresol and naphthalene, when added to ordinary manured soil, are found to disappear rapidly, and there is chemical evidence that this disappearance is largely due to a biological cause. This evidence led to a search for the causative organisms. Bacteria were found which in pure culture were able to derive the energy necessary for growth by decomposing phenol, the cresols, toluene and naphthalene. These organisms fell into three groups—non-motile, resembling B. phloei; large rods, producing clostridial sporangia; and short, oval pseudomonads. A study of soil samples, collected aseptically, showed the same three groups to be widely distributed in other localities. There is evidence that the pseudomonas group is of chief importance in producing phenol destruction in the soil.

Obituary.

Alfred Waters.—We regret to learn of the death, on February 13, of Mr. Alfred Waters, who died at Queens Park Lodge, Heywood, Lancashire, aged seventy years. He was a native of Kent and commenced his gardening career at Preston Hall in that county, but most of his experience was gained in the north, including gardens in Northumberland, Yorkshire, and at Crow Nest, near Halifax. Subsequently he obtained an appointment at Liverpool, and from thence he went as gardener at Farrington House, Leyland, near Preston. Here he remained for five years, when he took charge of the gardens at Hopwood Hall, Middleton, Lancashire, where he remained for fourteen years. In July, 1906, he was appointed Park Superintendent to the Borough of Heywood. Amongst the offices he held was that of chairman of the local horticultural society, and his wide experience was always at the disposal of the members. He leaves a widow, four sons and one daughter. One of his sons was killed in the war.

R. F. Martin.—It is with deep regret we record the death, on Thursday, February 22, of Mr. R. F. Martin, hardy plant propagator to Messrs. R. Wallace and Co., Tunbridge Wells. Mr. Martin was particularly well known in hardy plant nurseries, having worked with such well known firms as Messrs. Parker, Tooting; Messrs. Ware, Tottenham and Feltham; Messrs. Perry, Enfield; Messrs. Barr and Sons, Taplow; at Bee's Chester Nurseries; Messrs. Toogoods, Southampton; and Mr. Hemsley, Crawley. Last year Mr. Martin left Crawley for Tunbridge Wells, during which time he earned the respect and high esteem of all whose pleasure it was to know him. For over thirty years he was with Messrs. Ware, and while at Feltham the local Horticultural Mutual Improvement Society was started, of which he was the first chairman. He had an exceptional knowledge of hardy plants, which he was ever ready to impart to others, and many young gardeners owe him a debt of gratitude for his kindly help and advice. His whole life was devoted to work among hardy plants, and although he was handicapped by lameness, he was never known to complain. Death, due to heart failure, came suddenly, in his 60th year. Much sympathy is expressed with his widow and family. The funeral took place at Tunbridge Wells Cemetery last Monday.

ANSWERS TO CORRESPONDENTS.

CHRYSANTHEMUM SHOOTS DYING: *F. K.* It would appear that the Chrysanthemum stools have been placed a long way from the roof glass, consequently the shoots have become elongated and weak. Low temperature and an excess of moisture have completed the trouble.

MOSS IN A LAWN: *R. W.* Your suggestion to remove as much of the moss as possible by means of an iron rake should be followed, and a top-dressing of rich material containing a nitrogenous fertiliser should be applied evenly over the grass. Fine soil of a rich nature, such as old potting compost, should be mixed freely with sand and either nitrate of soda or sulphate of ammonia, applied in the proportion of about ½ oz. of the fertiliser to each square yard of surface of lawn. The presence of moss points to stagnant conditions, and the most thorough method of treatment would be to drain the lawn, using either drain pipes or trenches filled with broken bricks or any other hard material.

OXALIS TUBERS: *W. T. P.* The species of Oxalis to which you refer is Oxalis crenata, commonly known by its Spanish-American name of Oka. It is a native of Peru and a perennial, but cultivated as an annual. The long, swollen, ovoid tubers are highly esteemed in Peru and Bolivia, where they are largely used as a vegetable. Like all members of the Oxalis family the plant, including the tubers, contains a considerable amount of acid, and this acidity is counteracted in South America by putting the tubers into woollen bags and exposing them to the action of the sun, with the result that in a few days they become floury and sweet. They are sometimes dried, become wrinkled and acquire a flavour resembling that of dried Figs. In this condition they are known as Caui. The leaves and the young shoots are sometimes eaten as salad. Two varieties have been introduced to this country from France, known as the yellow and red variety respectively.

Communications Received.—Anglian — E. S.—A. S. P.—G. H. C.—W. R. G.—J. R. G.—R. J.—F. W. J.—B C.—F. G.—E. L., Kent—G. E M

MARKETS.

COVENT GARDEN, Tuesday, February 27, 1923.

Vegetables: Average Wholesale Prices.

	s. d. s. d.		s. d.
Asparagus, bundle		Onions.	
—Special Devon	10 6–12 6	—English, cwt.	3 6–
—French	10 0–12 0	—Valencia, case	8 0–
Beans—		Parsnips, cwt. ..	2 6–
—Guernsey, lb.	2 6– 3 0	Potatos,	
—Madeirabasket	4 0–10 0	—Canary Island case	18 0–
—Worthing ..	2 6– 3 6	—Algerian ..	– 2-
Belgian Chicory per lb.	– 2½ – 4	—Guernsey, new, lb.	11 -
Beets, cwt. ..	3 0– 5 0	—Dunbar ..	£5 10–
Cabbage, tally ..	2 0– 3 0	—King Edward ..	£3 5–
Carrots, cwt. ..	2 0– 3 0	—Others ..	£2 10–
Cauliflowers, doz.	1 6– 4 6	Rhubarb, forced, doz.	2 0–
Celery, roll ..	1 3– 2 6	—Natural ..	5 6–
—Celeriac, doz.	2 0– 2 6	Radishes, doz ..	1 0–
Cucumbers, doz.	10 0–24 0	Savoys, tally ..	3 0–
Endive, doz.—		Seakale, punnet	1 3–
—English.. ..	– — 2 0	Sprouts, bushel	2 6–
—French	2 6– 3 0	Spinach, bushel	2 0–
Lettuce French	1 6– 2 0	Tomatos	
Mint, doz. ..	4 0–12 0	—Canary Islands	20 0–
Mushrooms, lb.	1 3– 2 6	Turnips, cwt. ..	2 0–
Onions—			
—Dutch, bag ..	3 0– 3 6		

REMARKS.—The general conditions of trade are ra more encouraging, and improved weather condit should have a favourable effect on business. Pe Peaches, Plums and Grapes from South Africa arriving in large quantities and selling fairly For best packs of imported Apples there is a be inquiry, and smaller stocks are available. Home-gr Apples should be in better demand, and such sort Bramley's Seedling in good condition are in be demand. A few English hothouse Grapes are available, as well as Belgian Grapes. Oranges Lemons are a better trade, and Bananas in firm dem Lower prices are being realised for choice vegeta such as French Beans, Asparagus and new Pot probably owing to Lent. Mushrooms are more plent and their prices are slightly lower. Cucumbers arriving in better supply and their prices are ea Forced Rhubarb is a rather firmer trade. Green tables are plentiful, with prices steady, although on low side.

Plants in Pots, etc.; Average Wholesale Pri

(All 48's except where otherwise stated.)

	s. d. s. d.		s. d.
Adiantum cuneatum, per doz. ..	10 0–18 0	Cyrtomium ..	10 0–
—elegans ..	10 0–12 0	Erica melanthera	
Aralia Sieboldii..	10 0–12 0	„ 48's per doz.	24 0–
Araucarias ..	30 0–48 0	„ nivalis 48 „	24 0–
Asparagus plumosus ..	12 0–15 0	„ 60 „	10 0–
—Sprengeri ..	12 0–18 0	„ Thumbs „	6 0–
Aspidistra, green	48 0–72 0	Genistas 48's per doz. ..	15 0–
Asplenium, per doz.	12 0–18 0	Marguerites, per doz.	18 0–
—32's	24 0–30 0	Nephrolepis, in variety ..	12 0–
—nidus	12 0–15 0	—32's	24 0–
Azaleas, 48's per doz.	30 0–48 0	Palms, Kentia ..	24 0–
—60's	18 0–24 0	—60's	15 0–
Cacti, per tray, 12's, 15's ..	5 0– 6 0	—Cocos ..	24 0–
Cinerarias 48's perdoz. ..	15 0–18 0	Pteris, in variety	12 0–
Crotons, per doz.	30 0–42 0	—large 60's ..	5 0–
Cyclamens, per doz.	24 0–30 0	—small	4 0–
		—72's, per tray of 15's .	3 6–

CUT FLOWERS.

REMARKS.—Richardias (Arums) are amongst scarcest subjects, and their prices have advanced 5s. to 10s. per dozen. Further supplies of these flo are arriving from the Channel Islands, which relieve the situation a little, but many blooms s damage in transit. The supplies of Daffodils Narcissi are generally increasing both from growers and from the Channel Islands. The con ments from the latter source are of the che grades, street vendors being the principal bu Tulips are arriving in excellent condition. Da are improving in quality, and a better selectio offered. The supply of Roses has been more lin during the past week, especially red blooms mond), the pink variety Columbia being the plentiful. As regards other subjects in this departm the conditions of trade are similar to those of week.

GARDENING APPOINTMENT.

Mr. P. A. Randall, previously Gardener and Supervisor to Mrs. C. H. BAILEY, O.B.E., Gl Crickhowell, Breconshire, as Gardener to SEYMOUR-BERRY, Esq., Bucklands, Bwlch, R. Breconshire. (Thanks for 2s. 6d. for R.G. Box.—EDS.)

SCHEDULE RECEIVED,

Somerset County Agricultural Associatio Twenty-eighth annual show to be held at Ba Tuesday, Wednesday and Thursday, May 1, 2, a —Secretary, Mr. A. F. Davey, 13, Hammet St Taunton.

THE
Gardeners' Chronicle
Vo. 1889.—*SATURDAY, MARCH* 10, 1923.

CONTENTS.

Alpine garden, the—
  Asperula azurea setosa 131
  Erodium cheilanthifolium 131
  Jeffersonia dubia .. 131
Amsterdam, horticultural exhibition at .. 128
Annelids of Iceland and the Faroes 134
Books, notices of—
  Botanical Magazine .. 127
  Potato growing in New Zealand .. 129
  Vegetable Culture .. 129
Chrysanthemum, the history of the .. 132
Ferns, hardy British .. 137
Foreign correspondence—
  Lilium sulphurgale .. 133
Forestry—
  Plea for communal forests in Britain .. 136
Fruit, the setting of .. 128
"Gardeners' Chronicle," seventy-five years ago 128
Gardeners' Royal Benevolent Institution .. 128
Garden notes from S.W. Scotland 135
Gardens at Olympia .. 128
Hardy flower border—
  Herbaceous perennials 132
  Verbascum Miss Willmott 132
  Veronica Traherne .. 132
Obituary—
  Rev. W. Wilks .. 127
Orchid notes and gleanings—
  Cattleya Rothmos .. 133
  Large-flowered Cypripediums 133
  Oncidium McBeanianum 133
Palms of the Riviera .. 136
Plants new or noteworthy—
  Rhododendron strigillosum 135
  Sisyrinchium filifolium 135
Societies—
  Elgin Horticultural .. 139
  Newcastle and District Hort'cultural .. 139
Ward's, Mr. Kingdon, seventh expedition in Asia 134
Week's work, the .. 130
Wheat and nitrogen fixation 127
Wilks, the late Rev. W 127

ILLUSTRATIONS.

Cypripediums, a group of a large-flowered strain of .. 133
Erodium cheilanthifolium 131
Jeffersonia dubia 130
Polystichum aculeatum var. gracillimum Cranfield .. 137
Rhododendron strigillosum 135
Sisyrinchium filifolium 129
Wilks, Rev. W., portrait of the late 128

verage Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 40.1°.

ctual Temperature:—
Gardeners' Chronicle Office. 5, Tavistock Street, Covent Garden, London, Wednesday, March 7, 10 a.m. Bar. 29.3; temp., 48°. Weather—Showery.

Rev. W. Wilks. At the last annual meeting of the Royal Horticultural Society the Rev. W. Wilks roposed a vote of thanks to Lord Lamourne for presiding, and claimed the priviege of so doing because he was the oldest ellow of the Society present. For well over alf a century Mr. Wilks occupied a foremost position in horticultural activities and or thirty-two years was secretary of the Royal Horticultural Society; indeed, it is not verrating his services to horticulture to state hat no one man ever did so much as he to ring the R.H.S. to its present exalted posiion. Even so recently as Tuesday, February 27, Mr. Wilks was at the Royal Hortiultural Hall chatting with old friends and riticising plants and flowers, and occupied is seat on the Fruit and Vegetable Committee, and also on the Council. And "now he labourer's task is o'er." On Thursday, March 1, Mr. Wilks passed away at his ome at Shirley, near Croydon, full of years nd of honour. His great wish to remain on duty to the last was therefore fulfilled. The Royal Horticultural Society was fortunate in that its late secretary possessed not only a strong personality but an extent of vision given to few men. Still more fortunate was it that Mr. Wilks had a suavity of manner which enabled him to coax the timorous and check the unwisely enthusiastic, whilst his tact enabled him to handle difficult situations—and people—successfully, thus securing harmony of purpose. He was a born leader of men, and even those who disagreed with him held him in high esteem and admired his singleness of aim—the advancement of British horticulture. In our issue of November 28, 1919, we published an appreciation of Mr. Wilks on the occasion of his retirement from the secretaryship of the Royal Horticultural Society, and we can add little to that eulogy. Mr. Wilks was a good gardener, a keen florist, a pomologist of no mean order, a great secretary, and one whose strong purpose and unswerving devotion to a great cause may serve as an example for others. Mr. Wilks aspired and inspired, but he also worked, and the present generation of horticulturists enjoy, and succeeding generations will enjoy, the fruits of his labours. The Royal Horticultural Society stands as a monument to his energy and genius.

Wheat and Nitrogen Fixation. No more surprising announcement has been made for a long time than that published recently in *Science* by two American investigators to the effect that the Wheat plant is capable of obtaining supplies of nitrogen from the air. It is true that there have always been dissentients from the generally accepted belief that the Leguminoseae alone among flowering plants possess effective powers for obtaining supplies of nitrogenous food from the nitrogen of the atmosphere. For example, the German physiologist, Frank, advocated the view that the fixation of nitrogen by the Leguminoseae is only an extreme example of a power possessed by all green plants. Jamieson maintained that he had demonstrated nitrogen fixation by many different plants, and the late Prof. Benjamin Moore published experiments which appeared to demonstrate that green algae and other plants derive their nitrogen from the atmosphere. Moreover, the view has been put forward from time to time, and often supported by careful experiment, that plants which habitually live in symbiotic union with fungi—mycorrhiza plants and others—also possess this power. But from the practical point of view of cultivators, these observations, even if true, would seem to be of little importance so far as cultivation is concerned. The discovery that Wheat is among the nitrogen-fixers is, on the other hand—if it is established—a fact of the greatest practical importance; for it is bound to lead to further investigations which will result in the discovery of the conditions under which this power of winning free supplies of a costly and essential plant-ingredient is exercised. Among the Leguminoseae the habit of fixing free nitrogen depends, as is well known, on the presence of the nodule organism in the roots. Not until the roots have become infected by that micro-organism does fixation of nitrogen take place. That, at all events, is the commonly accepted view, although renewed investigation may prove that it is only true in the sense that the Leguminoseae unaided by the nodule organism are unable to fix nitrogen rapidly enough to supply the nitrogenous food which the young plant requires for its growth. Cultivators know, moreover, that in the case of garden Leguminous crops, it pays to help the plant in its early stages by supplying it with the ordinary nitrogen-containing fertilisers, for example, nitrate of soda; which means that in the seedling stage, even after nodules have appeared on the root, the supplies of combined nitrogen manufactured from the free nitrogen of the air are not at first large enough to provide all the nitrogenous material that the plant can use with profit to itself. It is possible that it may be found that something of the same kind occurs in the Wheat plant; that in its early stages of growth the powers of nitrogen fixation, which according to the most recent research it would appear to possess, are not fully developed. This would fit in with the known fact of the marked effect of dressings of nitrate of soda on the growth of the young Wheat plant. Although it is perhaps premature to speculate further on the subject, the guess may be hazarded that it may ultimately be shown that the remarkable effect of electrification on the development of plants, recently referred to in these columns, may prove to be related with the power of nitrogen fixation. In any case, the ranging of the Wheat plant among these plants which are able to fix free nitrogen must prove a discovery of great economic importance. Of all cultivated plants, Wheat is perhaps the most accommodating. It will grow under the most diverse conditions of climate and soil and give some return for the labour of cultivation. May not its accommodating nature be, in part at least, attributable to the fact—if fact it be—that it is able, if need be, to fend for itself for supplies of nitrogen? Both cultivators and men of science will await with eagerness the publication of the full account of this important discovery.

The Botanical Magazine.—The second issue of this classical work, now being published by the Royal Horticultural Society, comprises Part 2 of Volume 148, and contains illustrations and descriptions of eleven plants. The letterpress as in the previous part, is considerably extended, and the plates give a number of details of value in recognising the species. On the whole, the colour reproduction is well done, but there is room for improvement, particularly in alignment, and in the green of the foliage, especially in the first plate, tab. 8946, and in tab. 8948. Of the eleven plates, four are Chinese species, including Rhododendron sulfureum, tab. 8946, a low shrub with umbel-shaped, five to eight-flowered inflorescences; the flowers are spotted with crimson; Malus toringoides, tab. 8948, which was described and illustrated in *Gard. Chron.*, February 17, 1923, p. 89; Dracocephalum Isabellae, tab. 8952, a member of the Labiatae, forming a tufted herb, about 30-50 c.m. high and bearing almost digitate leaves with five or seven linear segments, and dense spikes of deep violet flowers; and Rhododendron planetum, tab. 8953, a species with tree-like habit and stout branches bearing trusses of pale rose flowers with or without a dorsal, crimson blotch at the base. Two Orchids are illustrated, Maxillaria Fletcheriana, tab. 8949, a very handsome species bearing one-flowered scapes that rise singly at the bases of the pseudobulbs, and bearing creamy-white sepals and arched petals that are white with well marked purple lines; the lip is yellow with deep red stripes running right and left; and Cirrhopetalum tripudians, tab. 8954, first described by Reichenbach f. in *Gard. Chron.*, 1876, p. 816. Other plants illustrated are Euphorbia anoplia, tab. 8947, which has a superficial resemblance to a Cactus, the plant having a think, succulent, ribbed stem, with rather inconspicuous flowers at the apical portion. Amorphophallus coffeatus, tab. 8950, a species with stout, cylindric spadix enclosed within a widely open spathe of rich coffee colour on the face and a bluish bloom towards the tube; the single leaf is borne on a stout, brownish-green petiole, and is divided into three almost equal segments all pinnately dissected; Echinocactus undulatus, tab. 8951, has a globose stem covered with spine clusters and bears at the apex sessile flowers in groups of three, the petals being pale rose colour; Lachenalia convallariodora, tab. 8955, is a South African species with flowers of a very delicate pink shade, borne on slender scapes that are spotted with purple and with lanceolate foliage that assumes a dark red or purple colour towards the tips, and Lonicera Griffithii, tab. 8956, a tall, climbing shrub with leaves of varying shape, and bearing terminal flowers of the usual Honeysuckle shape and pure pink in colour.

Honour for a Geologist.—The Senatus of Aberdeen University has conferred the degree of LL.D. on Dr. Mackie, Medical Officer of Health for Elgin and Rothes. Dr. Mackie is known as one of the leading geologists in the north of Scotland, and his work is quoted in technical geological literature in this country and America. To him belongs the credit of discovering the fossil plants of Rhynie—a quaint, old-world Aberdeenshire village—which have furnished the highest results in plant morphology and development, and he has written on the glacial phenomena of Morayshire, the sands and sandstones of the Elgin district, the microscopic character of various igneous rock masses, chemical analyses of rocks, and chemical and petro-chemical technique. In 1917 the Geological Society of London awarded Dr. Mackie the Murchison Fund for his research work. He was examiner in geology in the University of Aberdeen from 1902-06.

Legacy to a Gardener and His Wife.—The late Mr. Clement Locke Smiles, of Glen-Noc, Mayburyhill, Woking, who died on November 26 last, aged 77, left a legacy of £100 each to his gardener, Mr. Duffin, and to Mrs. Duffin.

The Nitrogen Industry in Germany.—A review of Germany's resources for the production of nitrogen compounds* states that before the war Germany used over 240,000 tons of nitrogen compounds, of which 200,000 tons were employed in agriculture. To make up this amount, 800,000 tons of saltpetre were imported annually from Chili. Since the war the consumption of nitrogen compounds in Germany has increased, but the plant for synthesising nitrogen compounds has increased at a yet greater rate, and Germany is now able to supply entirely her own requirements, the amount of synthetic nitrogen compounds now manufactured in the country reaching the total of 500,000 tons per annum.

Gardens at Olympia.—In connection with the Ideal Homes Exhibition, at Olympia, Kensington, a section of some two acres, as was the case last year, has been devoted to gardens. The visitor on entering is impressed with the rather curious tone produced by blue gauze under the roof, and although this gives a very pleasing effect when the sun is shining, on a dull day, such as when we were present, the atmosphere seems rather too hazy. Nearly all the gardens are "Royal" gardens; there is the garden of Her Majesty the Queen, of Queen Alexandra, of Princess Mary, etc., but it is not apparent that the gardens were especially designed by these Royal persons. The general assumption of visitors, however, is that they were, and that they are not entirely the work of professional gardeners is more than probable by the many incongruities which exist. For example, no true garden-lover would associate massed beds of blue Hyacinths with blue Cinerarias, even to obtain a "blue" garden, nor would he place gaudy masses of indoor Azaleas in association with Crocuses, yet these and other trivialities may be seen. Although the planting of the gardens may be criticised, there is no fault to be found with the planning, and especially the use that is made of such adjuncts as fountains, water pools, flagged paths, stone seats, and other garden ornaments. In Messrs. Whitelegg's garden, for example, the half-circular pergola with a stone floor and Corinthian columns at the opposite end are very pleasing, and so is the waterfall and stream in the garden arranged by Messrs. Pulham and Son, where the small beds of shrubs and Daffodils in the grass give a quite natural effect; a little rockery in this garden is also well conceived and delightfully planted. Perhaps the most natural of all the gardens is the one made by Messrs. James Carter and Co., which typifies a portion of woodland or wild garden, through which a stream meanders, the background of tall Conifers and other shrubs serving to heighten the effect. The grass is plentifully studded with Daffodils, and there are a few bushes of Rhododendron praecox and Prunus triloba at appropriate spots with Crocuses and other spring flowers: this garden shows originality, resulting in a pretty scheme. Mr. Ernest Dixon has planted a large area as a woodland dell, with an encampment at one end, and the path leading to it is strewn with fallen leaves, suggesting autumn rather than spring. Messrs. Gaze have also made a very attractive garden in which stone and terra-cotta vases are a feature, with garden seats, fountains and other ornaments. Their motif is a water garden—a long, narrow pool planted with Iris tingitana, with beds at either end of yellow Tulips, the whole enclosed by a Yew hedge.

Horticultural Council of the British Empire Exhibition.—The constitution of the Council of the Horticultural Section of the British Empire Exhibition is, we are officially informed, as follows:—Lord Lambourne, Chairman; Sir Geo. Holford, Hon. Vicary Gibbs, Sir Harry J. Veitch, Sir J. Colman, Sir F. Keeble, Dr. A. W. Hill, Prof. Bateson, Mr. E. A. Bowles, Mr. Reginald Cory, Mr. F. J. Chittenden, Mr. W. J. Lobjoit, Mr. Lionel de Rothschild, Lady Bathurst, Lady Northcliffe, Lady Margaret Boscawen, Miss Willmott, Miss Jekyll, Mrs. H. J. Tennant, Mr. H. V. Taylor, Mr. E. J. Holland, Mr. W. R. Dykes, and Mr. W. A. Bilney; representatives from the Chamber of Horticulture, the Royal Horticultural Society, Horticultural Trades' Association, National Rose Society, National Chrysanthemum Society, National Dahlia Society, National Sweet Pea Society, and British Carnation Society; the Editors of *The Gardeners' Chronicle*, *The Garden*, *Gardening Illustrated*, *Amateur Gardening*, *Garden Life*, *Horticultural Advertiser*, *Horticultural Trades' Journal*, *Nurseryman and Seedsman*, *Fruit Grower*, *Country Life*, and *The Field*; with representatives of the following nursery and seed firms:—Messrs. Sutton and Sons, Messrs. J. Carter and Co., Messrs. E. Webb and Sons, Messrs. Barr and Sons, Messrs. Charlesworth and Co., Messrs. Blackmore and Langdon, Messrs. Bees, Ltd., Mr. Elisha J. Hicks, Messrs. Hillier and Sons, Messrs. J. Piper and Sons, Messrs. W. Wood and Sons, Messrs. Fromow, Messrs. Laxton Bros., Messrs. Waterer, Sons and Crisp, Messrs. Clibrans, Messrs. J. Kelway and Son, Messrs. Armstrong and Brown, Messrs. Sanders, Messrs. Fisher, Son and Sibray, Messrs. G. Bunyard and Co., Messrs. Stuart Low and Co., Messrs. H. B. May and Sons, Messrs. J. Cheal and Sons, Messrs. T. Rivers and Son, Messrs. Seabrook and Sons, Messrs. R. Veitch and Son, Mr. C. Turner, Mr. H. J. Jones, Mr. Amos Perry, Messrs. T. Rochford and Sons, Messrs. F. Cant and Co., Messrs. J. Cypher and Sons, Mr. L. R. Russell, Messrs. Hurst and Son, Messrs. Lowe and Shawyer, Messrs. Milner, Son and Whit Messrs. Watkin and Simpson, Messrs. Coope Taber and Co., Messrs. Geo. Monro, Ltd Messrs. Pennell and Sons, Messrs. Austin ar McAslan, Messrs. McGredy and Son, Messr Chas. Ramsey and Sons, Messrs. W. Tresede Messrs. B. R. Cant and Sons, Mr. J. C. Al grove, Messrs. Alex. Dickson and Sons, Messr Dobbie and Co., Messrs. R. Wallace and Co Messrs. Allwood Bros., Messrs. G. Jackman ar Son, Messrs. J. R. Pearson and Sons, Messr Murrell and Son, Messrs. Pulham and So Messrs. R. H. Bath, Mr. C. Engelmann, Mr. Douglas, and Mr. R. C. Notcutt.

THE LATE REV. W. WILKS.

Gardeners' Royal Benevolent Institution.—Th Earl of Plymouth has kindly consented preside at the 78th anniversary festival dinn in aid of the funds of the Gardeners' Roy Benevolent Institution at the Hotel Victoria June next. We learn that Mr. Leonard Sutto has accepted the position of Chairman of th Committee of the Institution.

The Setting of Fruit.—Investigations unde taken by Mr. D. Casella* prove that fungicid and insecticidal preparations are all most d cidedly injurious to the setting of fruits if the come in contact with the pollen. All th specifics he tested were harmful, includin sulphur, to which some persons attribute beneficial action in the setting of fruits. Wate also proved injurious; it intensified the harm ful effects of previously applied fungicides the germinative power of the pollen. Thes conclusions confirm the contentions of man growers that it is harmful to use either insect cides or fungicides at the time when th blossoms of fruit trees are expanding.

Horticultural and Agricultural Exhibition Amsterdam.—Under the support of the Dutc Government and the Dutch Ministry of Agr culture, the Royal Dutch Agricultural an Horticultural Society will hold an extensiv exhibition of Dutch and Indian vegetable fruits and flowers at Amsterdam from th 15th to the 23rd September, 1923. The exh bition will be held in the Cycle and Moto Car Association's big hall and surroundin grounds.

Appointments for the Ensuing Week.—Mo day, March 12: United Horticultural Bene and Provident Society's annual meeting; Ba Gardeners' Society's meeting; Reading and Di trict Gardeners' Mutual Improvement Associ tion's lecture on "Popular Annuals for E hibition and Garden Decoration." Tuesda March 13: Royal Horticultural Society's co mittees meet (two days); Jersey Gardener Society's meeting. Wednesday, March 14: Ea Anglian Horticultural Society's meeting; She field Chrysanthemum Society's meeting. Thu day, March 15: Manchester and North England Orchid Society's meeting; Frida March 16: Eastbourne Horticultural Society meeting.

"Gardeners' Chronicle" Seventy-five Yea Ago.—*Dumelow's Seedling Apple.* An artic which I beg to state is incorrect, appeared last week's number relative to the origin of th Apple. It was raised by a respectable farme named Dummeller, of Shackerstone, a sma village in Leicestershire, one mile from Gops Hall, the seat of Earl Howe, and six from Ashb de-la-Zouch. Amongst the first plants of which he gave away, was one to a friend of at Normanton, another village, about three mi from him, whence no doubt it derived the na of the Normanton Wonder. Dummeller generally pronounced Dumelow, even in t immediate neighbourhood; I know the fam well, and have frequently heard them speak the Apple in question. *M. Henderson, Cole ton Hall, February* 29. *Gard. Chron.*, *Mar* 4, 1848.

Publication Received.—*Fungus Diseases Crops*, 1920-1921. Miscellaneous Publicati No. 38. Ministry of Agriculture and Fisheri 10, Whitehall Place, S.W.1. Price 3s., post fr

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* Cited in *International Review of Science and Practice of Agriculture*, November, 1922.

* "Study on the Pollen of Fruit Trees," by Casella (*Cattedra di Arboricoltura della R. Scuola S di Agricoltura in Portici*), pp. 24, 4 pl. Cosenza, 19

NOTICES OF BOOKS.

Potato Growing in New Zealand.*

This is a small and unpretentious book on the subject of Potato growing, both in garden and field; and contains a number of photographic reproductions, illustrative of subjects under discussion. Most books on the Potato commence with its history, possibly because what is obscure is always interesting. The author states that the Potato is more extensively cultivated in Ireland than in Britain, which is doubtful. It is universally cultivated in Scotland, and the farming of Potatos to sell, and as seed for the seedsmen, is yearly increasing. An equally extensive cultivation applies to England since the fens of Lincolnshire and Cambridge were drained, to say nothing of the broad lands of Yorkshire. A surprise is sprung upon us when the author tells us that the Potato disease (Phytophthora) originated in Germany in 1842 and spread all over Europe and thence to America. Mr. Samuel Fraser, of the Cornell University, U.S.A., tells us that there is reason to believe that the disease existed for ages in the western parts of South America, and that it seriously injured the Potato crop in the United States and Canada, in 1843. That seems more likely; for whoever saw Solanum Dulcamara and S. nigrum destroyed by the disease in Europe, although the most likely plants on which it could exist? From the Antipodes comes an echo of the Potato boom, and its disastrous effects in this country. The practical part of the book on cultivation, manures, tools for garden and field are quite orthodox and correct. The more progressive growers of New Zealand have now learnt the value of getting Potato sets from a colder and moister climate.

Some interesting experiments conducted at the Mosgiel District High School Garden showed that sets obtained from Christchurch gave a crop equal to seven tons per acre, while sets from Invercargill, in the extreme south of New Zealand, gave fourteen tons to the acre. While Yorkshire in this country advocates grass in the trenches to prevent the ordinary Potato scab, Pine needles and dry straw are used in New Zealand. Mr. Tannock is an old Kew man, who has not rested on his oars in his adopted country, but has produced a readable and useful book on the Potato.

Vegetable Culture.†

This book of some 144 pages octavo is devoted to a practical exposition of the subject of the cultivation of vegetables. Mr. Davidson lives in a rural district, has a large garden, and in the course of his gardening correspondence has been asked the reasons of the why and wherefore such things are done in a certain way, and proceeds to answer them in his book. There is no index, but the contents show what is in the book, and all the vegetables are arranged alphabetically. He is an advocate of trenching and manuring, and quotes the experiments of Dr. Dyer and Shrivell, of Hadlow, Kent, which are excellent in their way if the amateur would or could carry them out, for farmyard manure is part of the experiments and often unobtainable When the ground settles down in summer or is beaten down by rain, he advocates the use of the hoe. A very large proportion of amateurs do not know how to use a hoe, or certainly do not hoe, as their weedy plots and gardens testify. If the hoe were used as often as it is necessary there would be no weeds, except such as must be pulled up by hand. The author uses the term air channels to describe the loss of soil moisture by capillarity, but this is only a variant of capillary tubes, which do not exist. He advocates the use of lime once in six or seven years to land containing plenty of humus, but states that it should never be used on sandy soil. It is a plant food, and is necessary for the proper action of various other manures. Besides, the club-root of the Cabbage tribe is often severe in sandy soils, and lime is an antidote, which he recommends later on when dealing with that disease. The use of paraffin emulsion is often recommended for insect pests, but he might have laid more emphasis on the proper making of it, for many amateurs often come to grief over its use. He advocates the cultivation of Vegetable Marrows on the level, in well prepared and manured ground, and this is good, because amateurs are of the opinion that a heap is necessary, usually of manure or dry turf. The author's practice is good throughout, and the book well edited.

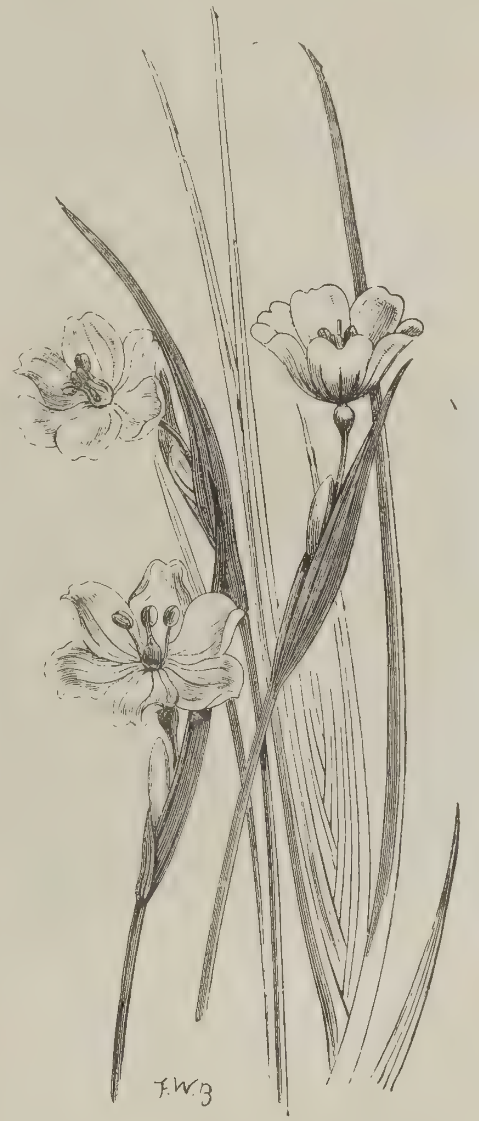

FIG. 61.—SISYRINCHIUM FILIFOLIUM.

PLANTS NEW OR NOTEWORTHY.

SISYRINCHIUM FILIFOLIUM.

It is more than a dozen years since I collected Sisyrinchium filifolium in the Falkland Islands and reintroduced it to cultivation in this country. I say reintroduced because so far as I have been able to ascertain, the plant had quite died out in British gardens. It may possibly have existed somewhere, but one could not find it, and at that time there were quite a number of knowledgeable garden enthusiasts who knew of the plant, or remembered it, and were anxious to possess it. I took special care, therefore, before setting out to collect plants in the Falklands, to look it up in the Kew library, where I found an excellent picture of it—I think in the *Flora Antarctica.* And the beauty of the plant as illustrated made me doubly keen to find it.

Sisyrinchium filifolium (Fig. 61) is a favourite flower of the Falkland Islanders. They call it Pale Maidens, and it is almost a national flower. But at the time of my visit it was April, and therefore autumn, and few flowers of any sort remained. My chief quest, Oxalis enneaphylla was not difficult to find, though I saw only one solitary flower remaining. I had grown the plant at home and knew well its characteristic Wood Sorrel leaves of fleshy grey. Pale Maidens were much more elusive. At Kew, I had memorised the flowers rather than the leaves, and now the flowers were all over. Nor could the islanders help me.

It was more by luck than anything else that I discovered and collected a few tufts of a Rush-like little plant on a rocky hillside a few miles from Port Stanley. Fortunately, I got them home alive, and still more fortunately, they turned out to be Sisyrinchium filifolium. The plant is quite easy to grow, and like S. grandiflorum, quite easy to lose, for in late summer it is apt to disappear underground, so that unless its station is carefully marked, it stands a good chance of getting dug up or otherwise destroyed.

It grows about six to nine inches high, with Rush-like leaves and an erect, wiry flower stem, at whose summit is a sort of sheath from which are put forth the flowers, two or three at a time in a long succession. These are bell-shaped, not unlike Snowdrops of satin texture, delicately lined with deep, reddish purple.

I have always heard them described as fragrant, but to me the scent is rank and offensive. Sisyrinchium filifolium is absolutely hardy in this country, and flourishes in light, rich soil. It increases with moderation by multiplication of the root, but it is more readily increased by seed, which it sets freely, and which is easily raised. The plant flowers in May and June. It was figured in the *Bot. Mag.*, tab. 6829; and also in the *Gard. Chron.*, new series, vol. xxiii., page 696.

Sisyrinchium filifolium was first introduced to this country in 1885. *Clarence Elliott, Stevenage.*

RHODODENDRON STRIGILLOSUM.

This distinct and interesting Chinese Rhododendron (see Fig. 65), was given an Award of Merit at the meeting of the Royal Horticultural Society on February 27, when exhibited by Lady Aberconway and the Hon. H. D. McLaren. It was discovered by the Abbé David about 1885, near Mupin, in S.E. Tibet, but was not introduced to cultivation in this country until 1904 by Messrs. James Veitch and Sons, Ltd., through their collector, Mr. E. H. Wilson. In that year he sent home seeds from Mount Omei, Western Szechuan; in 1908 Mr. Wilson again found R. strigillosum in Wa-shan, and in 1910 in the Mupin district. The colour of the flowers varies from white to crimson, but it is the rich blood-red form (Fig. 65, p. 135) that is the most charming and valuable addition.

Mr. Wilson describes this species as an evergreen bush, or small tree, up to 20 feet in height. It is, at least at Kew, a slow-growing, spreading bush with a greater diameter than height. In many gardens this may be rather a good characteristic than a fault, for abundant space will be necessary to accommodate the thousands of seedling Chinese Rhododendrons grown from seeds recently collected by Mr. George Forrest and Mr. Kingdon Ward.

It is the stiff, glandular bristles, a sixth of an inch long, thickly clothing the shoots and leaf-stalks, which give this species such a distinct appearance. The oblong-lanceolate leaves, 3-6 inches long and $\frac{3}{4}$-$1\frac{1}{2}$ inch across, are clothed with brown hairs beneath, especially on the mid-rib. The bell-shaped flowers are $1\frac{1}{2}$-2 inches long and wide, arranged in a neat truss. The mild weather to date this year has been favourable for the early-flowering Rhododendrons, but in ordinary seasons both flowers and young growths are liable to damage by frosts. Hence, except in very mild districts, this beautiful Rhododendron should be planted in a sheltered position. It is figured in the *Bot.Mag.*, tab. 8864. *A. O.*

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* *Potato Growing in New Zealand.* By David Tannock, F.R.H.S., Superintendent of Gardens and Reserves, Dunedin. Whitcombe and Tombs, Ltd., Auckland, Christchurch, Dunedin and Wellington, N.Z., Melbourne and London. Price 2s. 6d.

† *Vegetable Culture: A Practical Manual.* By Hugh C. Davidson, author of *The Culture of Pot Plants. Rational Fruit Culture*, etc. London: Crosby, Lockwood and Son, Stationers' Hall Court, Ludgate Hill, E.C.4. 1922. Price 4s. 6d. net.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Large Cymbidiums.—Specimen Cymbidiums are fine objects, and wherever room can be given them the grower should endeavour to have some. To maintain a number in vigorous condition, it is advisable to divide some each year, and then a young and healthy specimen will always be ready to take the place of one that is beginning to show signs of exhaustion. When an old specimen is divided, it must not be supposed that it will be in a good state to produce flowers the first season, and unless it is well rooted and in good condition it should not be allowed to bloom. After repotting, watering should be done very carefully, as no Orchid resents an excessively moist compost more than the Cymbidium. Plants that are in flower, and those that are pushing up their flower-spikes, may receive attention at a later date. They are best potted like ordinary plants, leaving plenty of space in the pot in order that the plant, when dry, may have copious supplies of water.

Shading.—Where the shading material, such as canvas and other blinds, were removed from the houses for the winter, it will be advisable to place them in position again. It is at this season, when the plants have passed through the dull, sunless days of winter, that thin-leaved Orchids easily scorch if direct sunshine is allowed to reach them. Too much shading is harmful, and the growth will be finer, more solid, and better developed in every way when grown under proper conditions of light. Some plants are capable of withstanding more light than others, and careful observation of this point will repay the cultivator. Permanent shading on the glass is harmful, especially during dull, sunless weather, and, in any case, will not be necessary for some little time to come.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Bush Fruits.—When the work of pruning Gooseberries and other bush fruits is completed, the ground should be forked lightly and mulched with well-decayed manure; should there be an insufficient quantity of the latter to do the whole ground, a mulch equal to its circumference should be placed under each bush. Raspberry plantations, and more particularly those of autumn-fruiting varieties that were recently cut down, should be treated similarly.

Wall Trees.—Complete the training of wall fruits. Sticks used for the training of trees in the open should be examined and renewed where necessary. Stout canes are preferable for the horizontal supports, which should be tied neatly to the upright sticks and made secure in the ground about 18 inches apart. Tar string should be used for preference as a tying material. In the case of young trees extension tiers should be allowed for. Trees in the reserve garden should also be attended to and the ground dug over.

Apricots.—The blossoms are expanding on Apricot trees, and especially on those under cases. The flowers should be pollinated by means of a camel-hair brush or a rabbit's tail.

Fruit Stocks.—In dealing with new trees it is well to consider the suitability of stocks. There are many trees that are grafted on stocks the origin of which is more than doubtful. It should be remembered that the Paradise or dwarfing stock varies considerably in vigour. It is probable that the bulk of commercial growers use the Doucin stock, as it is clean, and the scion unites readily to it, whilst trees on this stock fruit readily in a short space of time. It may not be the best stock for trees intended to occupy exposed positions, as the roots would not afford sufficient anchorage in the ground, and it would not be suitable for vigorous varieties, for which the broad-leaved English Paradise would be the more desirable. The Crab stock is the best for orchard trees. The main point in grafting is to see that the union is made clean and true. The war naturally affected the class of tree sent out, with the result that some had imperfect unions and did not callus, others had undesirable failings such as suckering. The Quince is mainly used as a dwarfing stock for Pears, whilst of Plum stocks the St. Julien was at one time often favoured. The Myrobalan Plum may be desirable as a stock for weak-growing varieties, and the Mussel Plum for strong-growing sorts. Where stocks of established trees especially Peaches and Nectarines, have a tendency to become hide-bound, parallel incisions should be made with a sharp knife just below the graft. These incisions may be made from four inches to six inches in length.

Walnuts.—Walnut trees are more or less left to take care of themselves, but cross branches and those that are crowded should be removed and broken burrs cut level to the trunk or main branch and the wounds tarred over to keep out wet and disease.

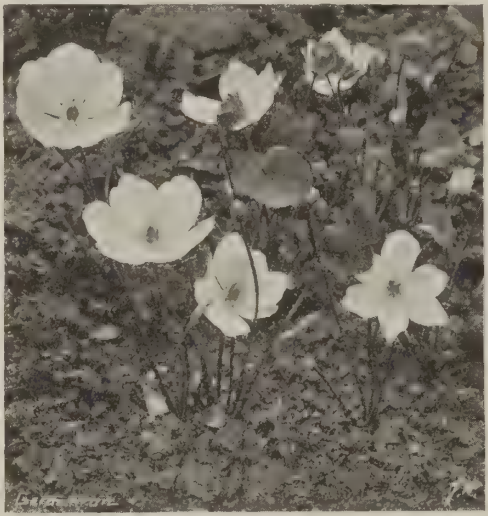

FIG 62.—JEFFERSONIA DUBIA; FLOWERS BLUE (SEE PAGE 131).

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Begonia Gloire de Lorraine.—Cuttings of this useful winter-flowering Begonia should be inserted as soon as suitable shoots are available; young growths from the base make the best plants. They should be inserted singly in thumb pots, or, where large quantities are required, in shallow seed boxes. Some cultivators consider the best plants are raised from leaves; personally, I have never noticed any difference, and certainly ordinary cuttings offer by far the quickest method of increase.

Anthuriums and Alocasias.—These Aroids include many handsome flowering and foliage plants; except in cases where the compost is in really good condition and well filled with roots, it is as well to repot the plants every year, and this is best done just as they are starting into growth, as this involves no check to the young leaves. Ample drainage is essential; the pots and pans should be at least half-filled with crocks. The compost should consist of good fibrous peat and loam, which should be rough and lumpy, and mixed with chopped Spaghnum moss, charcoal and silver sand. If the roots are in bad condition, they should be washed free of soil to admit of cutting away old rhizomes and dead roots. The roots should be carefully spread out and the compost worked in between them, building the whol up in a mound several inches above the ri of the pots, and surfacing the whole with Sphag num moss. At Kew, we use a short, close green moss for this purpose. During the grow ing season, these plants need a temperature 70° to 80°, with plenty of atmospheric moistur When well furnished with roots, these requi copious supplies of water.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Plants in Cold Frames.—Such plants a Pentstemons, Gazanias, Calceolarias, Viola Brompton Stocks, Echeverias and Agatha coelestis all require an increasing amount air, as the weeks go by, to harden them. T first three plants are often potted early in th year, and where this is practised it may done now. If the cuttings were not plant closely they need not be potted, but allowe to remain until they are placed out-of-door Potting, however, is best for Agathaea, the Bl Daisy, as the plant, being rather small an wiry, appreciates a little better treatmen Violas, on the contrary, are so hardy th where the ground is in a workable conditi they should be planted, early planting bei favourable to a vigorous root action. If t surface soil is in a rough condition, the nece sary tilth may be obtained by scattering layer of fine leaf-mould on it and working in t same as the plants are set out. In some garde layers of border Carnations are potted a wintered in frames. Such plants should now exposed to the weather by removing the light and, after a period of hardening, set in the flowering quarters, choosing a day when t soil is dry enough to make the latter thorough firm around the plants. Varieties of the t scarlet Lobelia, such as Queen Victoria, are a heeled in cold frames in many gardens, in ord to preserve them through the winter; these ro may be potted or boxed, dividing the strong if wishing to increase the stock.

Cannas.—Roots of these plants that have be resting in a frost-proof house during the wint should be sprayed with clear water from time time to encourage them to break into grow The plants may be left to make growth whe they are if spaced a little farther apart, or th may be placed in boxes, in each case surroun ing the roots with leaf-mould into which th will readily enter, and be sufficiently nourish until they are replanted in the flower garden.

Salvia patens.—The tapering, fleshy roots this Sage having been wintered in boxes in similar house to Cannas will also be benefit by an occasional sprinkling of moisture to fav the development of new growth. Only a lit artificial warmth is necessary to start the pla into growth—in fact the blue Sage need have fire-heat.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Es Woolverstone Park Gardens, Ipswich.

Early Peaches.—Attention should now be pa to thinning the fruits in the earliest hou commencing with those trees which have their flowers most freely. Remove fruits th are situated on the under-sides of the branch then, after a few days, reduce the number two or three of the most prominent and be placed fruits; a final reduction to one fr to each shoot may take place when it c be definitely ascertained which fruit is tak the lead of the others. The above method thinning the fruits early to the desired nu ber obviates the danger of loss from droppi during the stoning period. Tying the sho will now claim attention, and, when they a long enough to fill their allotted space, pin out the points. Young trees of both Peac and Nectarines usually have a tendency produce some extra vigorous shoots soon af isbudding has been completed, and these, if llowed to grow unchecked, will upset the alance of the trees, but pinching out the oints will cause the sap to circulate more venly to other parts. Stopping on a second ccasion may be necessary in some cases. A harp watch should be kept for any signs of hrip or green fly; if detected, the house hould be fumigated and the trees syringed horoughly the following day. Nectarine fruits re often permanently disfigured by thrips hich find a hiding-place under the dead flower aps; these should be removed as soon as ossible. Syringe the trees early in the afteroon, and, if done thoroughly, once a day will uffice. A little air should be admitted through he top ventilators as soon as the temperature egins to rise. If the mornings are bright nd sunny, damp down the house, taking care ot to cause steam to arise from the pipes nore than is absolutely necessary.

Strawberries.—The fruits on the early batch f Strawberry plants are fast swelling, and uring the last stage of growth the plants equire plenty of light and air, with liberal upplies of stimulants to cause the fruits to well. When the berries are commencing to olour, manures should be withheld, as there s the danger of contaminating the fruit. upport should be afforded to the fruiting pikes; if the trusses are allowed to hang ver the sides of the pots, the weight of the ruit bends the stem over the edge and checks he free circulation of the sap. The fruits of uccessional plants should be thinned out as oon as it can be seen which are likely to rove the best specimens. Six or seven good erries are to be preferred to a dozen inferior nes. A night temperature of about 60° and 0° by day will be suitable. Fresh batches of lants may be introduced into the forcing ouse as required. Later batches of plants nay be allowed to develop steadily in cool rames or pits.

THE KITCHEN GARDEN.

y R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Globe Beet.—Fresh, young Beets are always ppreciated early in the season for use in alads, and a sowing may now be made in a rame to obtain early roots, and it will be an dvantage if the frame is set on a hotbed. The Globe varieties are best suited for frame ultivation. Any light, friable soil is suitble, and the frame should be nearly filled with t. Sow the seed in drills made about one oot apart, and thin the young plants when hey are large enough to handle to about six nches apart. After thinning the plants draw little soil up to those that remain. Water hem with tepid water and spray them overead on bright days.

Broad Beans.—The first sowing of this useful egetable should be made in boxes of sifted oil, placing the seeds edgeways about two nches apart and covering them about an inch eep. Well water the soil and then place the oxes in a vinery or Peach house that is just being started. As soon as the seedlings are through the soil remove them to a cold frame nd protect them at night in the event of frost ccurring. They will soon make fine, sturdy lants, and are much preferable to those sown ut-of-doors at this time of the year. Green Leviathan is a splendid Bean for the purpose.

Peas.—Make sowings of Peas in boxes to btain seedlings for planting out later. Distribute the seeds broadcast thinly and evenly on he surface of the soil, cover them with bout half an inch of the latter, and raise the plants in a cold frame. Guard against mice by placing two or three break-back traps mong the boxes. Keep the frame closed until he young plants appear through the soil, then llow them all the air possible. Both the warf and the first-early tall varieties are best reated in like manner for the first crops, but owings may be made now on a south border n the open with every prospect of success.

THE ALPINE GARDEN.

JEFFERSONIA DUBIA.

The genus Jeffersonia is a member of the Berberis family, and is limited to one species by some authors, while others admit two. One, J. binata (J. diphylla), is a native of the Eastern States of North America, and has been in cultivation for more than a century. It grows about six inches high, and produces solitary white flowers about one inch across. The leaves are deeply cleft into two lobes. J. dubia, illustrated on p. 130 (Fig. 62) is a native of Manchuria. On account of the fruit having, when ripe, an oblique slit in the capsule, instead of a horizontal one, and other small different characters, it has been placed in another genus, under the name of Plagiorhegma dubia. These characters, however, scarcely justify its separation from Jeffersonia, a much more convenient name for use than the other.

The pretty Jeffersonia dubia has blue flowers three-quarters to one inch across, which are produced in April before the leaves are fully developed. Like many other plants in this family, the petals drop quickly, but the flowers are freely produced when the plant becomes established. The entire leaves are reniform in shape, with a cordate base, and are borne on long, wiry petioles. It is a charming little plant in its early stages, with its ruddy stems and young leaves and lavender-blue flowers.

Both the plants are tufted, perennials, and generally found in Pine forests and other shady woods. They flourish in shady parts of the rock garden, planted in light, rich and moist soil. Although little seed is produced, both species may be propagated by division of the roots in early spring.

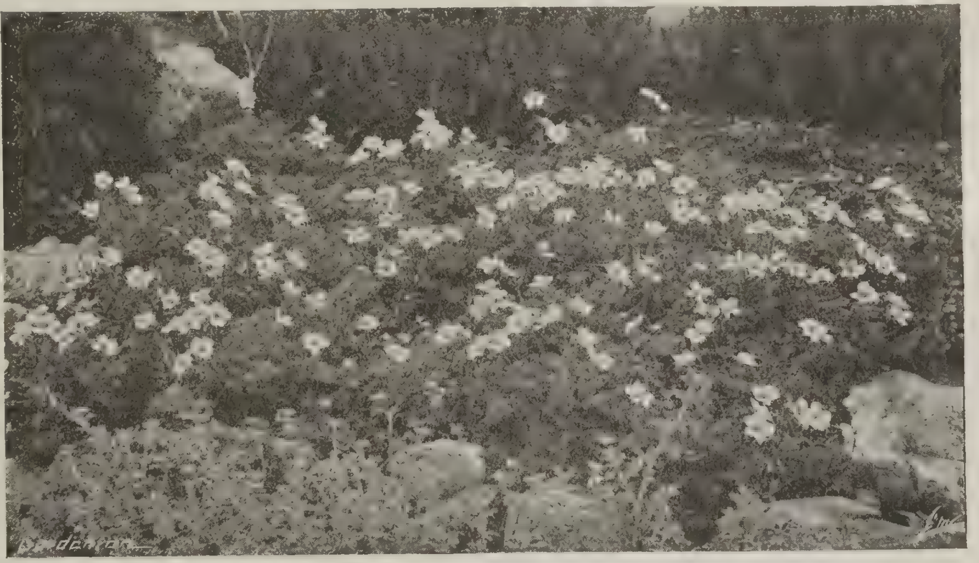

FIG. 63.—ERODIUM CHEILANTHIFOLIUM; FLOWERS WHITE WITH A PURPLE BLOTCH.

ERODIUM CHEILANTHIFOLIUM.

For a warm, rocky bank several members of the genus Erodium are excellent subjects, planted in the crevices between the stones, where the roots have access to good, well drained soil behind; they soon make large tufted plants, producing a wealth of flowers during the late spring and summer months. They are good wall plants, and dislike anything in the way of heavy soil, which causes them to damp off in the winter. In light and warm soils they do very well on the level ground.

One of the most charming species is E. cheilanthifolium. This is a native of South-eastern Spain, being found on the calcareous rocks of the Sierra Nevada, at an elevation of between 5,500 ft. and 6,000 ft. A low-growing plant, it forms masses of thick, fleshy stems two or three inches high, terminating in tufts of finely divided leaves of a silver-grey shade. The flowers are white, with a purple blotch at the base of two petals, radiating into lines, and they are very freely produced.

The nomenclature of this genus, especially in respect of some of the species, is very confusing, for this plant has been confused with E. trichomanifolium, and is often grown in gardens under this name. The true E. trichomanifolium is found on Mt. Hermon, in Syria, and although somewhat like the plants here illustrated (Fig. 63), it differs in being densely glandular all over the leaves and flower stalks. It is probably not in cultivation in this country; at least, I have not seen the true plant in gardens.

There are two other forms of this species cultivated in gardens, one of which is grown as E. guttatum. This might be called E. cheilanthifolium var. major, as it has much larger flowers than the type. The true E. guttatum is a native of Southern Spain and North Africa, growing up to a foot in height, with rose-coloured flowers. There is also another form with very small flowers, known as E. cheilanthifolium var. Valentinum.

E. petraeum is another species which has been grown in gardens under both the above names. It is a native of the Eastern Pyrenees, where it grows in the fissures of calcareous rocks. The foliage of this plant is green, and the leaves are finely divided, while the flowers are large, rose-coloured, with darker-coloured veins. There is no distinct blotch at the base of the petals, as in E. cheilanthifolium.

Many of the Erodiums freely cross with each other, and there are numerous hybrids grown in gardens, which makes the task of correct naming very difficult. They are all beautiful plants, very free flowering, and lasting for a long time in bloom. Seed is produced freely and they are easily raised by this means, while they may also be increased by means of cuttings in summer. *W. Irving, Kew.*

ASPERULA AZUREA SETOSA.

I think a good many gardeners will be glad to make the acquaintance of the Blue Woodruff, Asperula azurea setosa, an annual long in cultivation, but strangely neglected. It is a hardy plant, growing about one foot high, and of rather decumbent habit.

This species has the graceful foliage which characterises most of the Woodruffs, and charming heads of blue flowers, which are quite elegant in their formation and look exceedingly pretty on the plant and in a cut state. The seed may be sown under glass in March, if desired, but I prefer to sow in the open in April and thin the seedlings as needed.

Asperula azurea setosa continues to flower well into the autumn, and is charming in the border or in rockwork, where it helps to cover the bare spaces left by the leaf-decay of various kinds of early-flowering bulbs. *S. A.*

HARDY FLOWER BORDER.

VERBASCUM MISS WILLMOTT.

I was pleased to see Mr. Arnott's note on p. 52 of the *Gardeners' Chronicle* in praise of this handsome Mullein, and can subscribe to the opinion that a mass in flower is a most inspiring sight. I should, however, be glad to know if the plant is a true perennial, my experience being that it is only of biennial duration.

Some years since when seeds of this Verbascum were, I believe, first offered in the catalogues, I obtained several packets of seeds, and raised some four hundred seedlings. These were planted out in the spring, when of a sufficient size, in one group, and developed into sturdy specimens by the autumn. Notwithstanding a severe winter—the mercury fell to twenty below zero, or fifty-two degrees of frost—the plants were uninjured, and the following summer none failed to produce spikes between six and seven feet in height, clothed for half their length with large white blossoms. The whole group was singularly beautiful, but the plants all died after flowering.—*A. E. Thatcher, Bar Harbor, Maine.*

HERBACEOUS PERENNIALS.

The following perennial border plants deserve to be planted more extensively than they are at present, therefore attention is drawn to their beauty and usefulness.

Asphodeline liburnica, of bold, commanding appearance when planted in clumps in flower or shrubbery borders, grows from 2½ to 3½ ft. tall, producing pretty, soft yellow terminal flowers on stout stems from amidst a mass of grassy foliage. It is of easy cultivation, thrives in ordinary garden soil, and is propagated by division.

Armeria plantaginea gigantea, a giant "Thrift," of decided merit, ostensibly the finest of the genus, produces dense, close tufts of olive-green foliage, from which rise numerous wiry stems 2 ft. or more tall, with terminal heads of large, globular bright pink flowers, which are produced incessantly from the end of May till July and August; quite hardy, and propagated by division.

Geum hybridum Lady Stratheden has all the characteristics of the well-known "Mrs. Bradshaw," being remarkably free and flowering all the summer and well into the autumn, producing large double, clear yellow flowers on branched stems; it is a real acquisition for the second row in the herbaceous border.

Geum hybridum Lady Hillingdon is of quite different type to the preceding, having a more compact, dwarf habit, and almost prostrate foliage, hence a most desirable subject for the edge of the border or the rockery. The large, bright, clear canary-yellow flowers are produced in abundance; it is a continuous bloomer from spring till autumn.

Papaver orientale Lord Lambourne.—The praise of this variety cannot be too loudly sung, for, as well as being distinct, it is most beautiful, and when planted in bold clumps and established, it would be difficult to compare anything to it for effect. The flowers are massive, and of bold appearance, brilliant orange-scarlet, and when fully expanded they display a large black blotch on the centre of each petal. The latter are deeply fringed, resembling the well-known "Parrot" Tulip. The writer well remembers the sensation created at the Chelsea Show when this Poppy was exhibited by Mr. Amos Perry, of Enfield.

Polygonum campanulatum is one of the most beautiful of "Knotweeds," which may be safely planted in the herbaceous border in a partially shaded position. It quickly forms neat, compact bushes from 2 ft. to 3 ft. tall, producing numerous pretty pink and white Campanula-like, sweetly scented flowers on terminal and lateral branches. It is perfectly hardy and easily propagated. It is also a pretty foliage plant, having fairly large leaves, the upper side Sage green, while the underside is a pretty buff shade. The flowering period is from May onwards.

Cimicifuga simplex, a rare Japanese species, and most effective, thrives anywhere in the herbaceous border, requiring a fairly moist but not wet position. The plants grow 2½ to 3½ ft. tall, producing stout spikes of dense, feathery, snow-white flowers during August and September; propagated by division.

Chrysanthemum maximum Excelsior.—Although the family is well-known to most gardeners, "Excelsior" is of recent introduction, and is undoubtedly one of the finest "Shasta Daisies" yet introduced. The flowers are large and well-balanced, snow-white, and freely produced on stout, wiry stems from June till October. This variety grows 3 ft. tall, and is especially valuable where cut flowers are in demand; propagated by division and seed.

Rodgersia podophylla, one of the most handsome introductions from Japan, is popularly known as the "Bronze Leaf," on account of the handsome five-cleft, broad leaves, a foot or more across, resembling an umbrella, attaining a bronzy shade when fully developed. The milky-white flowers are borne in gracefully erect panicles; an ideal plant for a partially shaded and moist situation, growing 3 to 4 ft. high when established.

Lychnis grandiflora is an extremely showy and interesting Japanese plant, with a pretty, pendulous habit. It forms stout, leafy stems from 1 to 2 ft. long, producing in the axils of their bright green leaves, large flowers of a glowing salmon shade, which are prettily laciniated; perfectly hardy, and flowering from June till October.

Hemerocallis Sir Michael Foster is the most attractive member of a very useful genus, having Lily-like, large flowers of a soft apricot-yellow shade, borne on stout stems 3 ft. tall, amidst masses of Iris-sibirica-like foliage. The flowering period is during August and September; propagated by division.

Digitalis gloxinaeflora The Shirley is a strain of Foxgloves raised by the late Rev. W. Wilks in his famous garden at Shirley. The plants grow from 5 to 7 ft. tall, and produce abundance of spikes, many having 4 feet of inflorescence, in all shades of colour from snow-white to the deepest rose, whilst many are beautifully spotted and blotched crimson and maroon; an ideal plant for woods and copses, hedgerows, or carriage drives, where it soon becomes established and forms a glorious effect. *W. Logan.*

VERONICA TRAHERNE.

Veronica Traherne has all the brightness of the brilliant blue flowers of all the varieties of V. Teucrium, dwarf or tall, but its outstanding feature which distinguishes it from others is the possession of golden foliage. It is a suitable plant for the front of the hardy flower border, as when in bloom it is not more than nine inches high, and it has a somewhat trailing habit of growth.

It is a good perennial on dry soil; a little shade is not unwelcome, though not essential. The plant may be increased by division or cuttings. *S.*

THE HISTORY OF THE CHRYSANTHEMUM.

I observe in the current number of the *Journal* of the National Horticultural Society of France that at a recent meeting of the Chrysanthemum Committee, M. Gaston Clément gave a chatty address upon the Origin and History of the Chrysanthemum.

Our own N.C.S. initiated something of the same sort, and it is an undoubted fact that a little educational information, conveyed by a competent authority in a familiar chatty discourse, is far more welcome to some of the members than a more formal and severe address designated a lecture.

M. Clément quoted from the work of Mr. Harman Payne and M. René Comméja, and stated that the history of their favourite flower had often been written, but that there were certain facts and points of new departure to which he would draw the attention of his hearers as being those of the greatest interest.

The readers of the *Gard. Chron.* do not need any detailed account of M. Clément's interesting chat, for the subject has very often been dealt with in these pages. My present purpose, however, is to correct a few little slips, some mere printer's errors perhaps, which have crept into the résumé given in the Society's *Journal*, so that, if possible, they may not be perpetuated by other less well informed persons, who may probably borrow some of the details for reproduction elsewhere.

I am inclined to think that Mr. Clément's name for the Chrysanthemum in Chinese, which he gives in French as "*Ku* hoa," should be transliterated properly as "*Kiu* hoa," the latter form being that given by the French Jesuit missionary writer, who was the first to describe the flower in Vol. III. of "*Mémoires concernant l'histoire, etc., des Chinois*," which was written in Pekin in 1767, although not published in Paris till eleven years later. "Le Siku," M. Clément tells us, is the Japanese name for Chrysanthemum; this is an obvious misprint for Kiku.

A very important discrepancy appears under the date 1789, when we are told that "Arsène Blancard," a Marseilles sea-faring man, introduced the flower into France. It is difficult to understand where and on what authority M. Clément gives the introducer's name in that form. For some years, English and French writers attributed the introduction of the Chrysanthemum to one "Blanchard," whose christian name was never mentioned. But in 1901, before the Annual Congress of the French Chrysanthemum Society, held at Bordeaux, Mr. Harman Payne contributed a paper entitled "Historique de l'introduction du Chrysanthème en France et à l'Etranger," in which it was clearly proved that "Pierre Blancard" (his full Christian name was subsequently found to be Pierre Louis) was the real name of the introducer.

This paper, the text of which, in French, can be found in No. 48 of *Le Chrysanthème*, was awarded the large Silver-gilt Medal of the Society, Mr. Payne's researches having definitely settled several important outstanding historical queries, which had not been undertaken by any French member of the Society.

M. Clément recalled the names of the principal seedling raisers, who have contributed to improve the Chrysanthemum from the days of Capt. Bernet, the first European to raise novelties in that way, to the most modern, M. Maurice Martin (recently deceased). Twenty-four of his own countrymen are named—"Marrow," however, is an evident misprint for Marrouch, of Toulouse, a raiser of over forty years ago, who sent out Belle Paule, Mme. Clémence Andiguier, Marguerite Marrouch, and some of the earliest Japanese Anemones.

His list of English raisers is a small one; Wheeler, John Salter, Godfrey, Cannell, Wells and Jones are the only ones he mentions. For America he refers only to Thorp, Hill and Spaulding. Dr. Walcott, Nathan Smith, his son Elmer D. Smith, Pitcher and Manda, Waterer, and several other pioneers in the States might fairly have been mentioned. The only Australian is, of course, Pockett; although here again there are several raisers in that Colony who might have been included in the list.

I may also be permitted to call into question the erroneous spelling of a famous French horticulturist's name — I mean the Chevalier Solange-Bodin, as it is given by M. Clément. This gentleman was an ardent enthusiast, a prominent member, and one of the founders of the National Horticultural Society of France. His garden at Fromont was a famous one, and contained many horticultural rarities. But his name should be correctly given as "Soulange-Bodin."

English writers, unfamiliar with the facts, might think that in drawing their information from a French source they could implicitly rely on the material given, and it is for preventing the spread of error that we draw attention to the above very obvious slips to anyone acquainted with the subject. *P.*

FOREIGN CORRESPONDENCE.

LILIUM SULPHURGALE.

I HAVE followed with great interest Mr. Grove's writings about Lilies, and I was very pleased to notice the praise he bestowed on the Lily cross (and its progeny) of my lamented friend Professor Scheubel, but I am perplexed to find my name brought into connection with "the story," inasmuch as I never had any communication with Mr. Grove. To all inquiring about Mr. Scheubel's Lily I left no doubt as to its origin.

Of the original cross, L. sulphureum × L. regale, to my knowledge no plants have been distributed. Mr. Scheubel called them Lilium Lahnsteineri. The seeds saved from this cross—of which Mr. Grove tells us he had been presented by Mr. Scheubel with a portion—produced all the stock now in commerce. This first filial-generation, when coming into ower, has been carefully watched by Mr. cheubel and myself for several years, as according to Mendelian law they had to divide, 5 per cent. mother, 25 per cent. father, and 0 per cent. mongrel. This was not the case. Ve had just the same experience as Mr. Grove, ome turned out darker, others lighter, but none f them approached in flower or general habit ither of the parents. Every plant was a true ybrid, showing intermediate characters.

One of the parent-plants, L. regale, has a reat inclination to vary. Mr. Scheubel wrote e: "The best rose coloured form I got from eds among Brownii kansuense from Petersurg, I gave it to Mr. Grove," etc. The 24 lants of the first cross, mentioned by Mr. rove, were not alike, but showed considerable ifference. Shortly before his death, Mr. cheubel sent me seeds of the best plant, which herited more of L. sulphureum than the thers. This shows evidently that variation is rthcoming in Lilies, and need not be rever-on. A good many crosses between different ecies are known, which never revert, for instance, Primula kewensis (verticillata × floribunda), P. Arendsi (obconica × megasaefolia).

The not unpleasing variation in our Lilium sulphurgale could only be regarded as reversion if in the second and third generation forms like a rather true regale or sulphureum would appear. I cannot understand how Mr. Grove comes to the conclusion that nine-tenths of the so-called L. sulphurgale are not sulphurgale, when, a few lines previously, he states "they show a slight tendency to variation and farther development." Even scientifically the mixture of the two species must give in the second filial-generation 50 per cent. true hybrids, but here we have practically 100 per cent. At which point will Mr. Grove fix the limit for L. sulphurgale in the confluent line of the hybrids?

Selection of the best forms has, of course, now to take place, either from the first filial-generation or the following, which, no doubt, will be forthcoming soon.

Mr. Scheubel had, in 1918, the intention to name his Lily the Peace Lily, but the entire stock of the first filial-generation passed into the hands of an English firm of high repute, who put it into commerce as L. sulphurgale, a name which Mr. Scheubel did not appreciate, as it reminded him of Sodom's fate. He always wrote "sulphurale," which, to my mind, is a better word. The name of Peace Lily he abandoned. *C. Bonstedt, Curator, Gottingen Botanic Gardens.*

ORCHID NOTES AND GLEANINGS.

LARGE-FLOWERED CYPRIPEDIUMS.

WE have very much pleasure in reproducing a photograph of large-flowered Cypripediums received from Mr. G. F. Moore, Chardwar, Bourton-on-the-Water. Seven of the nine represented were raised from C. Christopher. Reading from left to right the varieties are: 1, C. Chrysostom var. Henry Moore; 2, C. Doris Stanton; 3, C. Gwen Hanmer No. II.; 4, unnamed (not a C. Christopher cross); 5, C. Mrs. Eley; 6, C. Chrysostom var. George Moore; 7, C. Memoria Henry J. Elwes (not a C. Christopher cross); 8, C. Chrysostom var. Richard Fort; and 9, C. Gwen Hanmer, No. I. As our readers are already aware, Mr. Moore has been particularly successful in the raising and cultivation of a new race of large-flowered Cypripediums, in many of which the ventral sepal shows remarkable development.

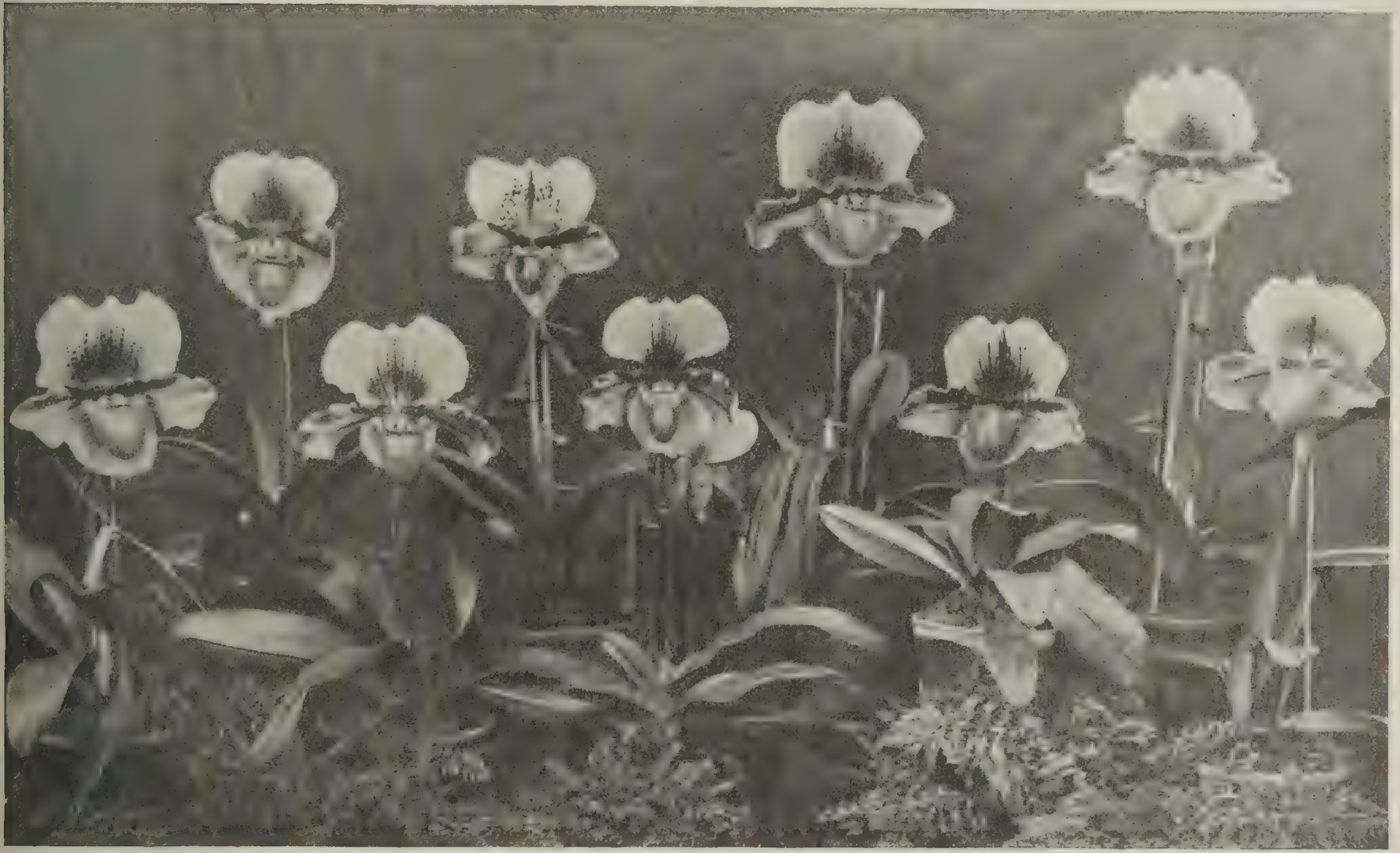

FIG. 64—A GROUP OF A LARGE-FLOWERED STRAIN OF CYPRIPEDIUMS.

CATTLEYA ROTHMOS.

THIS new cross between Cattleya Lord Rothschild (Dowiana × Gaskelliana) and C. Mossiae Reineckiana, from Messrs. J. and A. McBean, Cooksbridge, shows a commendable effort to improve Cattleyas of the large-flowered section, while still retaining their characters as in the type. The flower closely resembles Cattleya Mossiae Reineckiana, but is much larger and of finer form. The sepals and petals are white, of the clear shade seen in C. Gaskelliana alba, which was probably one of the ancestors. The lip is white with a freckling of pale mauve, less pronounced than in C. Mossiae Reineckiana, but similarly displayed.

ONCIDIUM McBEANIANUM.

THE value of this elegant hybrid between Oncidium macranthum and O. superbiens as a decorative flower has always been recognised, and was well demonstrated by the raisers, Messrs. J. and A. McBean, Cooksbridge, who first showed a specimen in their group at Chelsea in 1913, and have frequently shown it since, but probably never with better effect than in their Gold Medal group at the R.H.S. meeting on February 27, where some fine specimens were arranged at the back of the collection. The six to eight feet long, branched spikes may be arranged either extended or twined into one or more heads, and are always effective. The spikes bore fifty or sixty flowers. The sepals are golden yellow with a red tinge, and the fringed petals are white at the tips and darker at the base. It is quite intermediate between the parent species and, like them, flowers the greater part of the year.

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.

No. X.—OVER THE LA-PU PASS.

WE left Li-Chiang for the second time on July 20, crossed the plain, now more or less of a bog and, climbing the slippery, red-earth hills, descended once more to the Yangtze.

But what a contrast the river presents here! Instead of the arid cliffs of the loop, the wooded slopes descend almost to the water's edge. Instead of scattered patches of cultivation high up, a continuous shelf of cultivation occupies the river bank, crowded with villages. The river itself is much broader, dotted with islands which are covered with bush or pasture, or sometimes cultivated. And the vegetation is different to that of the loop, though there is only the Li-chiang range between the two regions. The lower slopes are clothed with Oak and Pine trees, the roads hedged with bushes of Berberis and Pyracantha, smothered with Clematis. In the villages are Mulberry trees, Pomegranates, Persimmons, Walnuts, Apples and Peaches. By the river grow Willows and Chionanthus, which last in the spring is a splendid sight, and well-named Snowdrop Tree.

There came a lull in the rains, the sun shone out, and it was pleasant enough in the green valley. On the limestone cliffs were many flowers—old friends some of them, such as purple Roscoea and Didissandra lanuginosa, with milk-white flowers, flushed violet; Thalictrum, Eremurus; and a Tiger Lily with chocolate-red flowers, which was new to me. By the wayside grew masses of Orange-flowered Hemerocallis, darkly speckled, and of Iris, the latter in fruit; it is a washy-flowered species, possibly I. tectorum.

Instead of turning off at Chi-tien to cross the watershed to the Mekong—the main road—we continued northwards by the Yangtze for another two days; thereby discovering on the wooded cliffs a Primula quite new to me. It was of the Obconico-Listeri type, a forest plant, heavily shaded; the fruits were almost ripe, yet one solitary flower I found, small, pink, yellow-eyed, probably but a wraith of the real thing. Seed I collected—may it forgive me for cropping it before its time, and germinate in an alien land!

Gradually the villages grew further apart, and their Chinese appearance waned; the houses were now more spacious, and Tibetan in design. Picturesque gardens enveloped each village, where Tobacco, Capsicum and tall Sunflowers flourished; there were pergolas, too, over which sprawled Pumpkins, and a forest of masts up which Beans scrambled in an eager race to reach the top. The valley closed in and became a gorge; no more islands—the river, now less than a hundred yards wide, ran like a mill race. Ahead we could see the great spurs echeloned up the gorges; we were on the threshold of the arid regions, where the flora quite definitely changes.

And right here we turned away from the Yangtze into the heart of the mountains, following up a big stream which flowed from the west. There was ample vegetation here, no fewer than three species of Rhododendron right down in the valley, R. racemosum, R. decorum and R. yunnanense, besides other Ericaceae, Oak, Gordonia, Castanea, Euonymus, etc. Plenty of herbs, too—Pedicularis, Sedum, Saxifraga, and as we got higher, Impatiens, Lythrum, Arisaema, violet-flowered Strobilanthes (in which the bees completely buried themselves), and a fine orange-flowered, black-speckled Tiger Lily, growing eight feet high. In this region the tributary streams flow for the most part of their course, north or south, parallel to the great rivers, the Yangtze and the Mekong, before turning aside to join them. We had not therefore travelled very far west, or north-west, when we once more turned northwards, whence this stream flowed. However, after following it for a full day's march we left it to cross a fairly high pass, that we might reach another and larger tributary of the Yangtze. We were now deeply involved in the forested mountains again. On our left—west flank, somewhere out of sight, was the Mekong-Yangtze watershed, amongst the lower spurs and valleys of which we were travelling. To our right (east) flowed the Yangtze itself, whose basin we had not left, though the river was buried out of sight.

It was the last day of July when we began the ascent of the pass above La-pu. At an altitude of 10,000 feet we found ourselves in the lower forest, where there were some fine trees—Ash, Maple, Elm, Oak, Pyrus, Rhododendron, and a few Conifers. Thickets of Strobilanthes appeared, two species, the second having milk-white flowers with two violet streaks, a pretty combination; species of Begonia, Pedicularis (there were meadows by the stream), Polygonum, Veronica, and what not.

In the open meadows at the summit of the range were violet Iris, and a few lingering flowers of a Nomocharis, which could only have been N. pardanthina. But how different to my plant from the Pine forests of Yung-ning (K.W. 4,000)! In the former, the petals are rose-pink, not white; with smooth edges, not frilled; rounded, not pointed. N. pardanthina bears three or four flowers on the main stem; the Yung-ning plant never more than two. The former grows in open, rain-soaked meadows, flowering in June, after the rains have begun; the latter grows in Pine forests, and flowers in May, before the rains. I had not specimens of both plants by me to make a close comparison, but all this could be seen in the twinkling of an eye, and I suspect other distinctions. If they are not different species, at the very least they are geographical varieties. But since the Hpimaw Nomocharis (which, superficially at any rate, does resemble N. pardanthina) has been raised to a distinct species under the name of (I think) N. Farreri, the same dignity can scarcely be denied to the Yung-ning plant. But it is just here that the personal factor comes in. Mr. Forrest, who, it will be admitted, knows something about Nomocharis in the field, maintains that there is only one species of Nomocharis in Yunnan, including the North-East Frontier of Burma—N. pardanthina; and he it was who first introduced this plant, from the Ta-li range, some years ago. Professor Bayley Balfour, on the other hand, who has studied the genus from all the dried material available, has described several species. I have met with plants of a Nomocharis in northern Burma—meadows full of it; on the Mekong-Salween divide—again meadows full; on the Mekong-Yangtze divide; and, as scattered plants, in the Pine forests above the lake at Yung-ning. And while I can see no difference between the Burma plant and that from the Doker La, thus disagreeing with Professor Balfour, I can see a lot of difference between that from the Doker La and the plant from Yung-ning, thus joining issue with Mr. Forrest. In any case, the differences are slight and technical, not such as to make any serious alteration in the appearance of the plant, as a garden subject. I have said, rather rashly, that Mr. Forrest believes there is only one species, N. pardanthina. He has, however told me of a wonderful species he once found with Tulip-pink flowers and no trace of the purple tint which is something of a blemish t N. pardanthina. But as he discovered this during his flight from the lamas, and as neither he nor any of his army of collectors have ever, despite repeated effort, been able to rediscover it, perhaps it was only a hallucination after all!

After crossing the pass, at an altitude o about 11,000 feet, there was an abrupt and complete change in the Rhododendrons. The ridg runs east and west, so that the flanks fac north and south; but I had never before realis how sensitive even Rhododendrons are to aspect On the south flank four species were abundan in the mixed forest; two of these were sma trees, and two shrubs or undershrubs. One the trees grew socially, forming a considerabl part of the forest in places, but only where derived some shelter from the slope of th ground; the others were more scattered.

On the north side, also, there were four species one of them still in flower. Near the summit on the steepest slopes, a gnarled tree wi copper-red felt on the under-leaf surface (silve white when young) formed dense forests to th exclusion of everything else. Here and ther in open places a dwarf species formed mats foot deep. Lower down was a large, untid bush with small pinkish-purple flowers in ver loose, floppy trusses; and scattered through th forest was a small tree with brilliantly silvere leaves—R. argenteum, probably. This last di not seem to have flowered at all for a yea or two, for I could not find a single fruit.

There was one particular in which the specie from the north flank differed from those on th south flank; the under-leaf surface of the forme was covered with a dense tomentum, or, in th case of the dwarf species, with a thick laye of scales; the leaves of the latter were glabrou above and below. One can only suppose tha this covering serves to protect the leaves again the late-lying snow on the north face. *F Kingdon Ward.*

ANNELIDS OF ICELAND AND THE FAROES.

THE value of the different kinds of worms the farmer and gardener cannot be overestimated. They not only render the soil porous and break it up into the most minute portions but enrich it with their own secretion. O this account it is every way desirable that w should enlarge our knowledge of them to th fullest degree possible. We need in particula to study their distribution, and make ourselve familiar with the species which are most prevalent in the different kinds of soil. Little a the subject has been investigated in this country we nevertheless know that some worms thriv in one, others in another environment. Th brandling is the first large kind to attack ran manure. The gilt-tail delights in vegetabl mould. While the steel-blue worm can thrive i heavy loam, the true earthworm is an epicure and likes his food rich and juicy. For som reason or other hardly any attention has hithert been paid to the worm-fauna of the Island north of the Hebrides, notwithstanding the fac that sixty or more years ago Claparède discovered several new species in these latte islands. Along the shores the seaweed harbour vast numbers of tiny red-blooded worms, whic elp to convert the algae into a valuable mulch or the land. Yet only one of these has been ecorded for Iceland, and none for the Faroes.

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* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10 and February 24, 1923.

Thanks to the services of my son, Dr. J. ewton Friend, who collected for me during a ecent tour in these regions, I am now in a osition to make a list of some of the annelids hich occur there. In two or three instances ney are of peculiar interest, because they shed new light on the question of distribution. eginning with those species which are most idely known, I may say that the true earthworm (Lumbricus terrestris) is very common round Reykjavik. I have carefully examined a core of adults and a number of young ones, nd found them to correspond in every detail ith the typical forms found in the British Isles nd on the Continent. They were five or six nches in length, and lived in soil which in this ountry would most probably have produced the ong worm. Of this species, however (Allolobohora longa), not a single specimen was found. he red worm (L. rubellus) and the purple worm L. purpureus) were not so common, but agreed ith the type. The latter is found alike in celand and the Faroes, and is the only worm rom the latter islands for which I have hitherto een able to find any record.

Two other earthworms closely resembling the urple worm are found in Iceland. They belong o a group frequently known as the tree worms Dendrobaena), because two or three of the pecies are peculiarly partial to dead trees and ecaying stumps. One of these, known to nglers in some districts as the gilt-tail (D. ubida) is exceedingly common in this country mong decaying leaves, and is of exceeding value s a mould maker. The other (D. octoedra) is a much rarer species in Britain, but has long een known to the Scandinavian naturalists, and seems to be a northern species. I believe the brandling also occurs, but at present we have no certain knowledge of any earthworms other than these, either for Iceland or the Faroes.

One of the commonest of our shore worms (Clitellio) has been recorded for Iceland, and here, until to-day, our list was closed. Not a single potworm (Enchytraeid) or red-blooded Pachydrilid is yet on record for Iceland; but I am able to report some interesting forms from the neighbourhood of Thorshaven. The first of these is a tiny red-blooded Pachydrilid (Lumbricillus lineatus) which was first described about 1770, by O. F. Müller. It is very widely distributed, and has many different names, on account of its having been found by various naturalists who regarded it as new. It thrives alike on the shore among seaweed and salt water, in estuaries, ponds and ditches, where the water is brackish, and in moist localities inland, where it is sweet. Like its congeners, of which there are many species, it is an invaluable worker. But the most interesting forms remain to be noted, because two of them have up till the present only been found in one other locality, and all the three species have colourless blood.

Some years ago a correspondent sent me specimens of a new worm (Mesenchytraeus oligosetosus), from Jersey, of which I gave a description in *The Zoologist.* More recently I found a closely allied form near Birmingham, but it differed in some important points from the Jersey species, and may ultimately prove to be distinct. Among the material collected in peaty soil about a mile inland from Horsham, however, I rediscovered the Jersey worm, the two corresponding in every detail. This species, unlike the last, has white or colourless blood, is about half an inch in length, and is distinguished by the presence of enlarged setae in three of the segments near the openings of the spermathecae. This is a characteristic feature of a small group belonging to the genus Mesenchytraeus.

Another white worm which occurs in the Faroe Islands is known as Chamaedrilus or Marionina. I hold that it is distinct from Marionina on account of its free spermothecae, the forward position of its sexual organs, its colourless blood, and other peculiarities.

Finally comes the tiniest soil worm ever yet found (Achaeta minima). This, however, is of such interest that I withhold description until results may be summarised. *Hilderic Friend.*

GARDEN NOTES FROM S.W. SCOTLAND.

"IF there were no difference of opinion there would be no fancy waistcoats." Quite so; that is a piece of early Victorian philosophy which comes usefully to mind sometimes in everyday social intercourse. Elastic though it be, however, it is sorely strained by Mr. Kingdon Ward's denunciation of Lilies on page 107. "I dislike the group altogether," says he; "there is a hint of foolishness about them—they are not quite genuine." Methinks that before penning this sentiment Mr. Ward must have partaken of something very indigestible at tea. It is true that in no genus of hardy plants does disappointment lie so surely in wait for the cultivator as among Lilies—in none is the percentage of failure so high; but is there any other in which success secures a more satisfying reward? Is there anyone so insensible to beauty of form and splendour of colour as to regard Lilium regale with indifference, still less with "dislike"? Luckily, that is one of the kindliest of Lilies in cultivation, giving no trouble if provided with a site in deep, well-drained loam, with a dash of lime in it, and a liberal top dressing of wood ashes from which rain has not been allowed to wash the potash. We have had this Lily here over five feet high, with seventeen and fifteen blooms on single stems (not fasciated); but it is more graceful when the blooms do not exceed five or six in number on a stem. This, by the way, is not precisely the season to prose about Lilies, for the planting season is over—or ought to be—and flowering is a long way ahead. Still, there is the promise of good things to come, for as early as yesterday (February 23) I noticed ruddy sprouts showing from established clumps of L. auratum platyphyllum, and the evergreen L. candidum is already six inches high.

While on the subject of Lilies in general, the question suggests itself whether it is not high time that measures should be adopted by the British Government similar to those whereby the United States Government has sought, and to a considerable extent succeeded, in preventing disease being imported with bulbous and other plants. American legislation to this end was at first drastic, and caused much loss and inconvenience to European exporters; but it resulted in putting Governments and nurserymen alike upon their mettle. A phyto-pathological service was established in several countries, and many plants which were at first rigidly excluded from the United States are now admitted subject to a guarantee from the Government of the exporting country. British Potatos, for instance, after being totally prohibited entry at American ports during many years, are now passed in if covered by a certificate of immunity from the

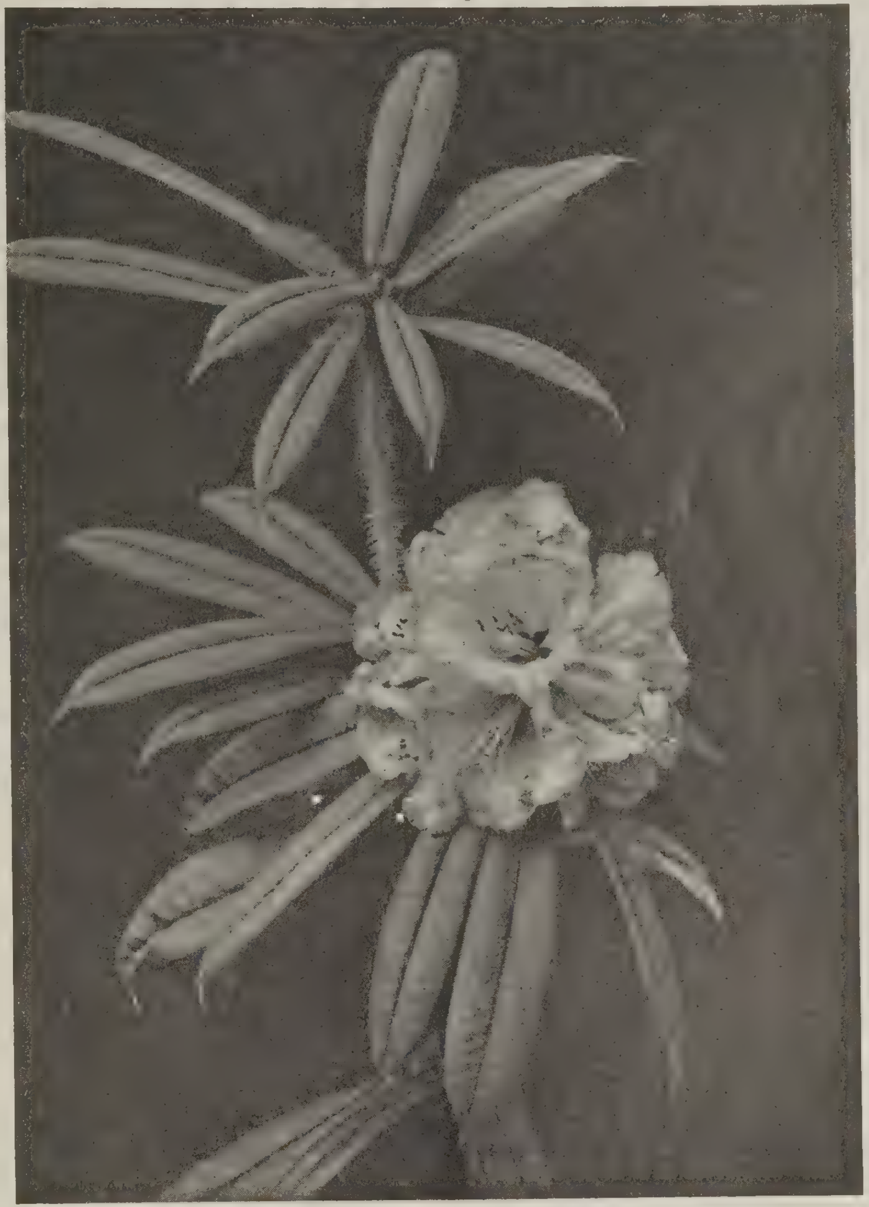

FIG. 65.—RHODODENDRON STRIGILLOSUM; R.H.S. AWARD OF MERIT, FEBRUARY 27 (SEE PAGES 125, 129).

British Minister of Agriculture, and a later relaxation of the law has been made in favour of bulbs of Galanthus, Chionodoxa, Scilla, Fritillaria, Muscari, etc., which are admitted without any certificate. In like manner, restriction of the importation of Dutch bulbs into this country has been withdrawn in respect of bulbs guaranteed by inspectors appointed by the Netherlands Government.

Now the Japanese are no whit behind any European or American people in scientific intelligence or enterprise. Their export trade of bulbs, especially Lilies, is immense, and must be of very great value; but gardeners and amateurs know to their cost and bitter disappointment the wretched condition in which Japanese Lily bulbs reach this country—what a minute percentage of them are free from the spores or mycelium of Rhizopus necans. Why should our ports not be rigorously closed against the importation of goods infested with this most destructive fungus, until the Japanese Government shall set up a phyto-pathological service such as has been established by other civilised nations for their own protection? This seems a matter which the Royal Horticultural Society might press upon the attention of the Ministry of Agriculture with a view to putting a stop to the free importation of disease. It may be noted that inspection at either port of export or import has been found to be ineffective; it can only be conducted satisfactorily in the grower's grounds and on his premises.

Early Rhododendrons are flowering very irregularly this season with us. Never have I known R. arboreum so sparsely set with flower-buds; while on the contrary, R. barbatum is just beginning a very liberal display. R. Thomsonii is so laden with promise of blossom that I incline to dread the effect upon the constitution of the older plants. The hybrids of R. Thomsonii show similar profusion. Among Chinese species, R. haematocheilon is over, R. lutescens is in full bloom (February 24), R. oreodoxa and R. Fargesi just about to open. *Herbert Maxwell, Monreith.*

PALMS OF THE RIVIERA.*

The last of the Palms I mentioned was Serenoa serrulata, Hook. Some years ago I received seeds of a Palm from Florida under the name of Serenoa arborescens. This name was given to a Palm described by Prof. Sargent (Coulter, *Bot. Gaz.*, XXVII., 90); but Prof. Beccari has placed it in the genus Scoclorapha of H. Wendland. As Scoclorapha arborescens is a strikingly ornamental Palm of southernmost Florida, and the Florida Keys, with very slender trunks, reaching a height of 12 metres, it would be a most valuable acquisition for Riviera gardens if sufficiently hardy. My plants, however, do not correspond with the description given by Prof. Beccari; but up to now quite so to the description of Serenoa serrulata, Hook. H. Wendland substituted the name, it appears (in which publication and with what right?) of Diglosophyllum for the name Serenoa, and, indeed, the very characteristic manner in which the rachis is terminated in a formation like a ligula makes this Palm distinguishable at first sight. As this character is obvious in my plants, there can be no doubt that they are either the common form of Serenoa serrulata, or, perhaps, an arborescent form. As I am very anxious to obtain as many forms as possible of this exceedingly hardy Palm, found growing wild all over south-eastern United States, from South Carolina to South Florida (even, it appears, the very southernmost localities), I should be obliged if readers living in those parts of the United States, where this or other Palm species grow wild, would kindly send me fresh seed in exchange for others. There can be little doubt that a Palm so widely distributed in such different climates must exist in distinct forms, though Prof. Beccari just mentions, in passing, that he has noticed only two forms representing very slight differences in the flowers.

Everybody knows Rhapis flabelliformis, so common in greenhouses and absolutely hardy on the Riviera, where, however, it is not nearly so commonly met with as could be expected from its ornamental value and its ready growth. Where the soil is not too poor and dry, it will form a dense group of very slender, straight trunks, clothed, like those of the Trachycarpus, with blackish fibres, and as the internodes are long, it rapidly acquires height and may form a rather important feature in the garden when the stems have attained some 3 or 4 metres; though the leaves are only small, they are flabelliform, deeply divided, and of a dark green colour.

Two other species, Rhapis humilis, Blume, and R. Kwaniwórtsik, Wend. (of which latter a variegated form exists), are smaller, but much more graceful than R. flabelliformis. R. humilis has stems so slender as a thin lead pencil, and as the small stems form a tuft and bend in all directions, it is a most ornamental Palm. It is, indeed, astounding that these very hardy Palms are so rarely met with here, since there are numerous small front gardens where they would form a most graceful ornament, and at the same time occupy little space.

Arenga Engleri, Beccari, is a hardy Palm, as it has not suffered at all through the low temperature(—8° C.) ever experienced in my garden, the only garden, so far as I know, where this species is found in Europe. It is a small cespititious Palm, which, by its leaves, is entirely distinct from all the Palms I have mentioned hitherto. The leaves, which somewhat resemble those of the well-known Caryotas (Fishtail Palms), are not, however, double-compound, but only singly, while the leaflets are pointed, but with angular, somewhat rounded, divisions. Though this species has proved quite hardy, it has been of slow growth, and I do not know to which size it will attain. In climates where no Caryota or other Palms with more or less similar foliage can exist, Arenga Engleri may at least provide a representative with foliage very different from the ordinary pinnate or flabelliform shape of Palm leaves.

With this species I terminate my summary of Palms which have proved hardy, even during the severe frost of December, 1920, the worst experienced on the Riviera since 1820. By "hardy" I do not mean that none of these Palms has suffered at all—far from it, since some have been injured more or less on the leaves or flowers, but all have recovered rapidly. Besides, it would not be right to condemn a Palm because it was damaged by so unusual a frost—such a one as may occur perhaps once in a hundred years—since all these Palms do not suffer the least in ordinary winters

My list has been very concise, because many plants of the species which I cultivate are only young, and do not yet exist in other gardens of the Riviera, therefore I cannot give details as to their development and ornamental value. There can be little doubt, however, that not only will such species prove interesting, but many others also if it should be possible to obtain them, though, judging from more than thirty years' experience, this seems to be difficult and a task requiring patience without limit. Let me state only as an example that I never could obtain seeds of the small Palm which once I saw growing by thousands around New Orleans and elsewhere (Serenoa serrulata?). Readers may therefore judge the difficulty of obtaining seeds of Palms growing in wild countries! But if these lines should happen to be read by plant-lovers who would care to contribute to the introduction to cultivation of hardy Palms or otherwise tropical-looking plants, I shall be always happy to send seeds in return or render some other service. I propose in my next article to mention Palms which, up to December, 1920, have proved more or less hardy here, and of which many have not suffered on the Riviera to the east of Nice, where the temperature has not fallen so low, and even in certain favoured localities hardly went below 0° C., the freezing point. *Dr. A. Robertson Proschowsky, Jardin d'Acclimatation, Les Tropiques, Nice, France.*

FORESTRY.

PLEA FOR COMMUNAL FORESTS IN BRITAIN.

Addressing a largely-attended meeting of
Aberdeen University Forestry Society, Mr. Pe
Leslie, Lecturer in Forestry, recently ma
an eloquent appeal for the establishme
of communal forests in this country, contendi
that were these established throughout
country object-lessons in forestry would
everywhere available, and afforestation schen
in general would doubtlessly receive a mu
larger measure of public support than
accorded them at present.

Choosing for his subject "Communal Life
Alsace-Lorraine," a country which he and
senior forestry students visited last autumn,
Leslie stated that when the woods of the Chu
and of some of the seigneurs were taken o
after the French Revolution by the forest s
vice of France, the situation as regarded
rights of usage was found to be exceedin
complicated, and, in many cases, made g
forestry in the State woods impossible. T
French Government divided its woods into t
parts—the State forest proper and the co
munal forest. Even yet the process had
been completed, and thus in France they h
three kinds of forests—State forests, commu
forests, and forests that were as yet undivid
between the State and the communes. The co
munal forests, so far as their management
concerned, were under the control of the Sta
forest service, which managed them in consu
tion with the communal Council. The retur
after costs of administration had been deduct
were paid into the communal treasury. T
inhabitants of the commune were entitled
supplies of firewood and constructional timb
although that became impossible when the
lages grew into towns. The money returns fr
the forests, on the other hand, benefited all t
inhabitants of the commune, whether the co
mune were large or small, in so far as t
income permitted a reduction in the rates a
assisted in the upkeep of schools, roads, a
municipal work. Sometimes the returns we
so large that payments in cash were made
each member of the commune.

Comparing the forest services of France a
Germany, and those of other European co
tries, Mr. Leslie declared that the French s
vice suffered from over-centralisation, and th
it was well there should be local influences, su
as the communal ownership, acting as a mi
gating force. In the Forestry Act of 1919,
which the British Forestry Commission was
up, the French forest service was the model th
was adopted; but we had no communities
Britain particularly interested in forestry
actively supporting our forest policy. Perh
the time was not ripe, but had the promote
of the Forestry Act made provision for
acquisition of forests in the neighbourhood
towns and villages, so that the proceeds mig
be used for the reduction of taxation, a ne
element would have been introduced wh
might have proved of vital importance.

The lecturer then proceeded to compare
French and German systems in Alsace-Lorrain
and said he had questioned several Alsatians
to whether they thought the German or Frenc
administration was best. They all lamented t
over-centralisation that was taking place sin
the German evacuation, and they admitte
the German forest administration was the bett
one of the two—only it was German. An inn
vation introduced by the Germans in Alsa
Lorraine, and one likely to remain, was th
felling of all trees by woodcutters in the emplo
ment of the forest service, whereas in Franc
as with us at home, the timber was sold stan
ing.

After a few favourable comments on the Ge
man forest administration in Alsace-Lorrain
Mr. Leslie said communal forests were not co
fined to Alsace-Lorraine and France, and tha
one of the classic examples of this type of fores
was that of the Sihlwald, belonging to the tow

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*The previous articles by Dr. Proschowsky were published in our issues for May 1, June 12, July 10, September 4, November 20, December 18, 1920; March 12, April 30, June 11, October 8, November 19, 1921; January 21, February 11, April 1, June 17, July 29, October 14, November 11, and December 23, 1922.

Zurich in Switzerland. The communal forest . was growing in the United States and ada. They had in Scotland a few examples ommunity-owned forests. The City of Aber- had several acres of forest land which had carefully planted. The city of Elgin, in ayshire, owned over 100 acres of woodland ch were being carefully managed, and ch in due time would well repay the outlay ended. Glasgow and Dundee, and other ricts in the south of Scotland, had embarked somewhat extensive schemes of afforestation; the sum total was still practically negligible. at was wanted, contended the lecturer, was, the first place, the setting up of proper hinery, and his suggestion was that the stry Commission should be given limited ers of acquiring, with the funds allocated to Commission by the Treasury, woodland areas he neighbourhood of towns and villages on lf of the latter. These forests would me the property of the towns or villages which they were situated, and the income ved from them, after payment of expenses of agement, would be devoted to the reduction axation, while the actual management of the ds remained in the hands of the Forestry mission.

HARDY BRITISH FERNS.*

introducing his subject, Mr. Cranfield ed that in the time at his disposal it was e impracticable to deal with it in a comiensive manner. The biological side alone ld occupy much more time; proceeding, he ed that Ferns and their allies probably reented one of the earliest forms of vegeta. They existed in immense numbers and igantic stature when the universal tempera was very much higher than the tropics of ay, and the earth enveloped in an atmosphere vapour heavily charged with carbonic acid Under these conditions Ferns, Mosses, isetums, etc., assumed proportions comable with the growth of the largest timber s. The fossil remains of many hundred ies of these plants have been found in the measures; Ferns and their allies have, efore, played an important part in the omy of the world. Many millions of years e passed during which both animal and etable life have undergone great modifica, but the Cryptogams have retained the y method of reproduction by spores, and I shall touch upon later. Ferns do not luce the richly coloured blossoms and ghtful scent of the flowering plants, and for reason, probably, they have failed to bee so universally attractive as their merits erve, but even the normal forms when growin congenial conditions present a refreshing lure and grace of outline, which, however, ar transcended by the choicest of the varietal ns, that have either been found as wildlings ngst hosts of the normal types or raised from finds by selective cultivation.

here are between thirty and forty species of ns indigenous to this country, and these vary lmost every conceivable direction from abnorly foliose sports to extremely attenuated. nched, crested, lax, convoluted, tasselled and y finely divided types, also in stature from it forms to dwarf examples. In no other ntry are the native Ferns known to vary he same degree; the reason of this departure n the type is not known, but when the nge has taken place, there would appear to no limit to a Fern's capacity to vary, the inary frond becoming incrested and *vice sa* amongst the more protean varieties, reing principally in ragged and irregular offngs. All our native Ferns possess the merit ardiness, but to attain their fullest develop- it some of the choicer varietal forms need protection of a cold frame or conservatory. ny species are evergreen and of robust habit; many forms of them having been grown by traders for a long time are obtainable in considerable variety and at trifling cost. When planted in suitable environments these hardy Ferns may be enjoyed the year round, whether in the fresh verdure of their early growth, or as mature specimens bedewed with raindrops or outlined with a delicate tracery of hoar frost. The method of reproduction by spores in Cryptogams differs from flowering plants that produce seed. The spores are produced usually on the back of fronds within capsules grouped in heaps known as sori, either naked or covered with an indusium differing in form in various species, which variations form an important factor in determining the species. Each species has its popular name; thus Athyrium Filix-foemina is known as the Lady Fern, probably on account of its refined and delicate appearance; the Lastreas are known as the Male Ferns, presumably for the opposite reason; Polystichum angulare and P. aculeatum, the soft and hard Shield Ferns respectively, and so on.

Varieties are almost endless in number. In Lowe's *Handbook*, published in 1908, over 1,700 varieties are described, of which some 1,300 were wild finds. Many were, however, quite unworthy of record. Since that date many more have been found, from which vastly improved forms have been raised, until, after a few generations of selective cultivation, they are scarcely to be recognised as descendants of the normal types. In some Ferns two forms of fronds are produced, for example, in Blechnum and Osmunda, and these are popularly spoken of as flowering Ferns.

The number of spores shed annually by a Fern can scarcely be conceived, but it has been computed that a single plant of Athyrium Filix-foemina possessing a single crown and 14 fronds will produce annually 1,120,000,000 spores, every one of which is capable of producing an independent plant. The spores are very minute, but retain their vitality for many years. There is but little wonder that Ferns spring up apparently spontaneously where local conditions of moisture are favourable; the spores may be borne by the wind for very long distances. I can only mention other means of reproduction, such as from bulbils, basal buds, soral and apical apospory.

The varieties of the various species are classified throughout on the same principle; the plumosa forms are usually considered to be the choicest and are usually barren.

At this stage Mr. Cranfield illustrated his remarks with lantern slides as follows: 1, Fern fronds embedded in coal; 2, Sori, spores in various stages of vegetation and mature prothali with the male and female organisms and the young Ferns; 3, bulbils and aposporous growths in various stages of development; 4, Asplenium Trichomanes — inciso crispum Clementii; 5, Asplenium Trichomones confluens; 6, Athyrium Filix-foemina revolvens; 7, A. F.-f. Victoriae, an extraordinary example of the departure at one step from the normal to a combination of the most complex character; 8, A. F.-f. ramulosissimum; 9, A. F.-f. Kalothrix; 10, A. F.-f. Todeoides cristata; 11, A. F.-f. Clarissima; 12, A. F.-f. vars. showing the pedigree of the superbum section; 13, A. F.-f. plumosum Druery; 14, A. F.-f. plumosum percristatum and other forms in the superbum section; 15, Blechnum Spicant concinnum and normal form of comparison; 16, Blechnum S. Maunderi; 17, B. S. plumosum Airey's No. 2; 18, B. S. concinnum Druery; 19, Lastrea pseudo-Mas polydactylla Wills; 20, L. p. M. cristata; 21, L. p. M. cristata fimbriata; 22, L. p. M. angustata; 23, Lastrea montana cristata gracilis; 24, L. m. formosa cristata improved; 25, L. dilatata foliosa cristata; 26,

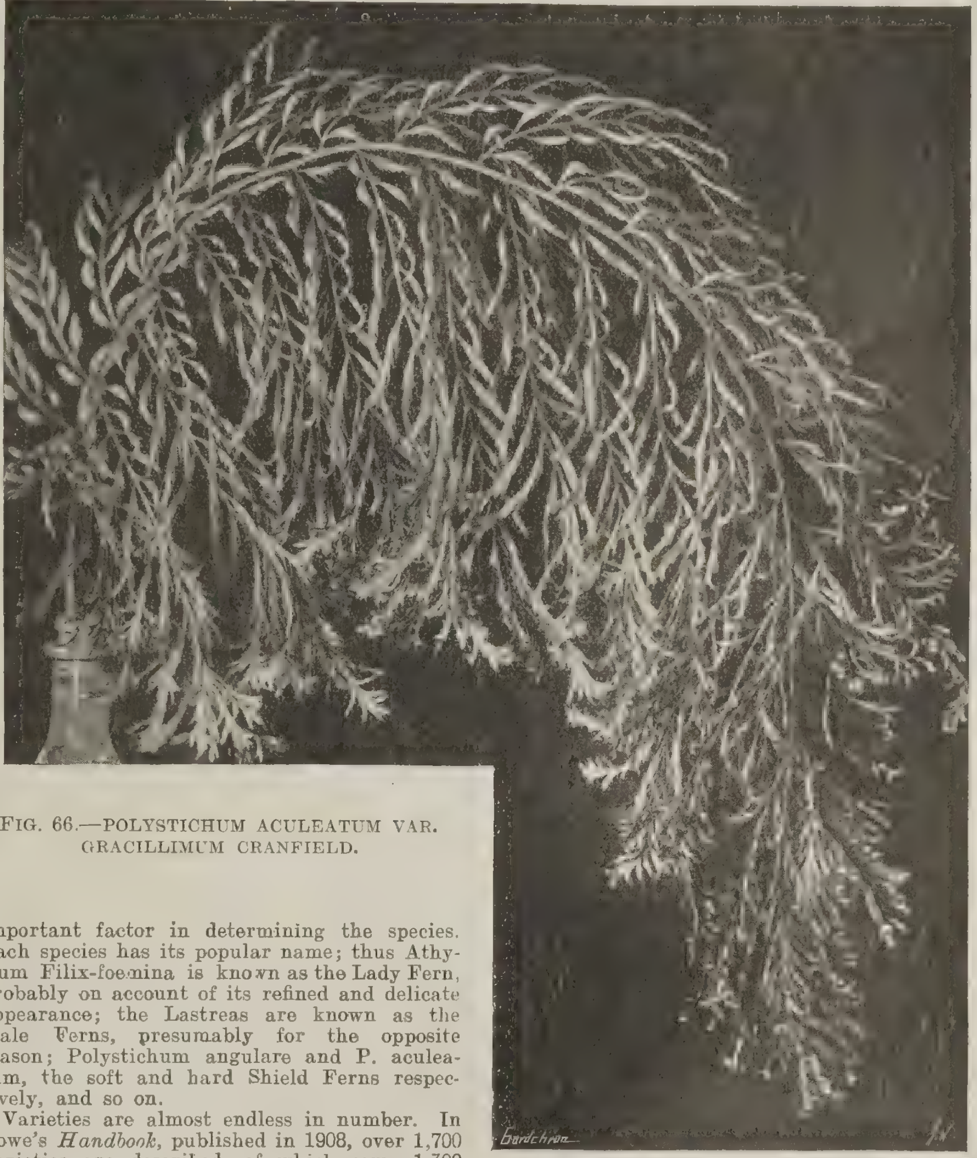

FIG. 66.—POLYSTICHUM ACULEATUM VAR. GRACILLIMUM CRANFIELD.

Résumé of a lecture delivered by Mr. W. B. Cran- President of the British Pteridological Society, he meeting of the Horticultural Club, Hotel Belia, on February 27.

Polypodium vulgare and varieties; 27, P. v. Omnilacerum, Oxford variety; 28, P. v. grandiceps Parker; 29, P. v. cornubiense; 30, P. v. pulcherrima; 31, P. v. trichomanoides; 32, P. v. cristatum Henwood; 33, P. cambricum Henwood; 34-38, various forms of P. v. cambrium; 39, P. Dryopteris, normal and the plumose form; 40, P. phegopteris in natural habitat; 41, Polystichum angulare grandiceps Moly; 42, P. a. nitescens Jones; 43, P. a. nitescens grandi Cranfield; 44, P. a. divisilobum Bland; 45, P. a. brachiatum Stansfield; 46, P. a. stipulatum Carbonel; 47, P. a. percristatum Moly; 48, P. a. Hirondelle Moly; 49, P. a. plumosum Moly; 50, P. a. plumoso-divisilobum Jones and Fox; 51, P. a. p. laxum Jones and Fox; 52, P. a. p. robustum Jones and Fox; 53, P. a. plumosissimum Birkenhead; 54, P. a. plumoso divisilobum Balwinii; 55, P. a. v. divisilobum variegatum Harris; 56, P. a. pulcherrimum Stansfield; 57, P. a. rarefactum Stansfield; 58, P. aculeatum pulcherrimum Beavis; 59, P. a. pulcherrimum Druery; 60, P. a. gracillimum Druery; 61, P. a. gracillimum cristulatum Druery; 62, P. a. gracillimum Cranfield (see Fig. 66); 63, P. a. foliosum Edwards; 64, P. a. plumosum Green; 65, P. a. varieties illustrating the pedigree of the gracillimum section; 66, Scolopendrium vulgare in sixteen varieties; 67, S. v. sagittato projectum; 68, S. v. cornutum grande; 69, S. v. Coolingii; 70, S. v. plumosum Stansfield; 71, S. v. p. cristatum Perry; 72, S. v. crispum Drummondae superbum; 73, s. v. crispum Drummondae gradiceps; 74, S. v. crispum nobile; 75, S. v. crispum speciosum Moly; 76, S. v. crispum speciosum, a bank of about fifty specimens; 77, S. v. crispum varieties on either side of a ditch; 78, the late Mr. C. Green's fernery; 79, the late Mr. C. T. Druery's fernery; 80, portrait of the late Mr. C. T. Druery.

The lecturer concluded his remarks by stating that the British Pteridological Society, of which he has the honour of being president, was formed for the purpose of encouraging the cultivation of the varietal forms of native Ferns, and that *The Gazette* published by the society afforded a large amount of highly interesting information. A number of questions were asked at the conclusion of the lecture, which led to an interesting discussion in which Dr. F. W. Stansfield, Messrs. C. E. Pearson, P. R. Barr, H. S. Rivers, Geo. F. Tinley and others took part.

NUTS AND FILBERTS.

The best varieties of Nuts and Filberts may be included in a few. Filberts are known by the husks being tubular and much longer than the nut. The best sorts are White Filbert, a nut of medium size, oblong-oval in shape. The bush is an abundant bearer. Lambert's Filbert (syn. Kentish Cob), a large nut, an inch and a quarter long, and three-quarters of an inch wide. The name Cob does not conform to the synopsis laid down for those known as cob-shaped. Cobs are described as follows:—"Husks as long as or a little longer than the nut. Nut roundish, angular." Pearson's Prolific is a splendid polleniser, as it produces catkins freely, and should be planted amongst other sorts. The nut of this variety is of medium size, roundish, and of good flavour. The bush is a free bearer, and very precocious, fruiting in a young state; I have seen very small bushes bearing a heavy crop of excellent nuts. Merveille de Bolwyller is a large, handsome Cob Nut, and worthy of a place in every garden where nuts are in demand. The bush is a vigorous grower, and the nuts are of first-rate flavour. The variety Duke of Edinburgh belongs to the Spanish Nut classification, with husk as long as or a little longer than the nut, which is ovate in shape. It is a very fine variety, and I grew it to perfection twenty years ago whilst in charge of a large garden. The nuts, produced in clusters, were of fine flavour, and looked well on the dessert-table. I also advise the planting of a few bushes of Cosford or Pearson's Prolific, amongst this or any other variety, to ensure fertilisation. The Cosford Nut is a variety for dual purposes—that is, it crops well and produces plenty of pollen. It is a useful sort for market purposes, owing to its prolific bearing. The nut is large, ovate, inclining to oblong. The kernel is large and of excellent flavour. The best plantation of Nuts I ever saw received yearly dressings of basic slag and spent animal manure, the latter in quantity just sufficient to cover the surface. *Pomona.*

VEGETABLES.

WINTER SALADS.

Salads share with raw fruit that richness in vitamines which modern medical science declares to be essential to the preservation of health. It is, therefore, desirable to use this natural food as much as possible, and particularly at the present season, when the supply of fresh fruit is at its lowest. It is, however, precisely at this season that the greatest difficulty is experienced in meeting the demands of the salad-bowl, and the following remarks are intended mainly to meet this difficulty.

The Lettuce is unquestionably the premier salad vegetable, and is available during the greater part of the year. Where facilities for forcing exist, it is not difficult to maintain a constant supply during the whole year, but without such facilities the earliest Lettuces can hardly be expected until April, and the latest supplies cease with the advent of November.

Endive then takes the place of Lettuce, and, with good cultivation and improvised protection, the season of this salad may be extended until February. A variation may be obtained by using Celery, but the supply of the last ceases at about this time, and until spring Lettuces are available it is not easy to provide a daily supply of salads without the aid of glass. There are, however, several plants which are helpful during this season, though most of them are much less used in this country than in France.

One of the best of these is Valerianella olitoria, Corn Salad, or Lamb's Lettuce, supplies of which may be obtained very easily from the open ground during winter and spring. The seed may be sown broadcast in August and September in any odd plot of ground, and the plants will develop useful leaves without being transplanted.

Chicory is also valuable at this season. The common variety is, perhaps, easier to grow, but the improved variety, Witloof, is recommended if a more refined product is desired.

In order to obtain good roots of this variety, the following method of cultivation may be recommended. The seed should be sown in drills, drawn 12 inches apart, in June, and the plants thinned to 6 inches in the rows. In November they should be lifted, the leaves trimmed off about one inch from the neck, the lower end of the tap-root shortened, if necessary, to uniform length, and the roots replanted about 2 inches apart in a trench and covered with 6 inches or 8 inches of fine, light soil. Those required for early use may be forced by covering them with a layer of fermenting manure, in successional batches, but those required later will need no manure, as the natural growth will give supplies during March and April. When growth is complete, the roots should be dug up and the blanched heads cut off at the neck.

The Dandelion also provides excellent material for salad, and is of easy culture. If grown in narrow beds and covered with rough boards and litter in autumn, the plants will yield constant supplies of leaves during the whole winter.

It will probably be a surprise to many that Claytonia perfoliata, the Winter Purslane, makes an excellent salad. The plant grows as a common weed on light soils, and its bright green, succulent leaves, which are of mild flavour and quite free from bitterness, are produced in abundance during the winter. *W. Auton, Pyrford Court Gardens, Woking.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible
the opinions expressed by correspondents.]

"**The Orchard and the Garden.**"—The remar
by Mr. W. Roberts on p. 106, concerning *T*
Orchard and the Garden, have doubtless be
read with much interest by many lovers
old gardening books. The statement that t
copy he refers to contains the armorial bookpla
of Sir George Shuckburgh, Bart., is of spec
interest to me, for the same 18th centu
bookplate is in my copy of James Parson
The Microscopical Theatre of Seeds, "being
Short View of the particular Marks, Characte
Contents, and Natural Dimensions of all t
Seeds of the Shops, Flower and Kitchen-garden
etc.," 1745. This latter work consists of 3
pages (9 by 7), with eight plates. Althou
stated therein that "the whole design will
comprehended in four volumes," I believe on
the first was published. Perhaps someone wou
kindly enlighten me on this point, and t
possible rarity of the book. *Gurney Wils*
Hayward's Heath.

Bourdichon's Illustrations of Black Currants.
Mr. Brotherston is correct in his supposition
to the derivation of the names *Poivre* a
Poivrier for the Black Currant, in use in t
sixteenth century. That they were commu
names based upon a superficial similarity of t
fruits of two very different plants is prov
by the following citation from D'Alecham
Historia generalis plantarum, 1587; "*Gros*
laria nigra, est aliis Pipirella a baccis magn
tudine, coloreque piperi similibus,. offici
Ribes niger, Gallis Poivrier et groselier n
dicitur." Or, in English, Grossularia nigra
called by others Pipirella, from its berri
similar in size and colour to Pepper; in t
apothecaries' shops, Ribes niger; by the Frenc
Poivrier and Groselier Noir. *S. Savage.*

Large versus Small Foliage on Onions.
Among the strains of Ailsa Craig Onion th
are often a few plants with small foliage a
quite small stems. These plants occupy l
room than others and their bulbs ripen earlier-
great advantage in all seasons, but especially
a wet one. Cannot our seedsmen increase t
very valuable stock or strain? I feel sure
would repay them, as, even though this sma
foliaged strain may not be the best for exhibiti
purposes, it is far the best for utility. It w
pitiful to find so many big-necked Onions l
year in gardens where the small-necked o
would have been ripe and fit to harvest in ea
September. *J. P.*

Black Currant Bud Mite and Reversion (
p. 81).—Liming the bushes has been tried
is of little use for big bud, owing, I presu
to the impotency of the material shortly af
its application. Speaking to Mr. P. C.
Veitch, of Messrs. Veitch and Son, Exeter,
the last R.H.S. Autumn Show, he concur
with my remarks as undermentioned. The b
way to check the pest, so far as both M
Veitch and myself had seen, was to spray
bushes just before the opening of the bud w
a weak solution of a summer fruit-tree wa
and while the moisture remained give the tr
a dusting of flowers of sulphur. The content
held was that the sun's rays on the sulphur
leases fumes detrimental to the life of
insect, as Mr. Veitch informed me his firm h
carried out this procedure for several years,
never a big bud had put in an appearance.
also have been informed that Messrs. Crav
an Evesham firm, had treated a plan
tion with a solution of sulphur or sulphure
which had cleansed the bushes remarkably w
These bushes had a virulent attack of "mit
and were cut to the ground, then treated w
the specific the first and second year. To-
the bushes are perfectly clean, and I trust t
may remain so. Spreading slaked lime un
neath the bushes does no harm and assists
plant in making vigorous growth. With reg
to reversion in Black Currants, that it is due
constitutional defect of the plant may
proved by the following observations made

yself during the past 20 years. For years the opagation of this Currant was from cuttings rmed of non-fruiting growths. No one ever ncountered reversion on trees raised from cuttings taken from healthy fruiting bushes. This ct was supported, some years since, by one the largest Black Currant growers in this untry after perusing a short note I wrote in e of the London papers. Fruitless trees may found on shallow soil, after a few years' uiting, with the symptoms of "reversion"; is is not reversion actually, though akin to it, it is really a case of starvation, although the sults are the same as with propagation from uitless stock. The real reason of reversion is suppressed fructification," and the only way to viate it is by rigid selection, viz., propagation om healthy, fruiting trees. Over-manuring will so cause sterility. A friend of mine near Ledry has over-dosed his plantation of Black Curnts with heavy dressings of farmyard manure. he trees have grown so "rank" the trusses of wers fall off before fertilisation is effected, e bushes developing shoots similar to stout amboo canes. I shall watch this plantation ith great interest during the coming season, ving advised the owner to leave it severely one, this being, to my mind, the correct thing do. *Pomona.*

Late Chrysanthemums (see p. 94).—Evidently . *G.* is not up to date with his varieties of rysanthemums, nor does he include any of the wer varieties, which are very free flowering, r florist's work. Autocrat (syn. Enfield White) have grown for years as bush plants for late wering. Cheshunt White and Favourite are th good sorts. There is plenty of difference tween these three varieties, both in growth d bloom. He mentions Liverpool Yellow; ere is no such sort; he means Golden King, or lden Age, both of which are grown largely Lancashire for market, owing to the dwarf bit of the plants. He has missed three varies that are marketed in quantities, viz., ldock Crimson, Framfield Pink, and Thorpe's cember Pink; another white variety, Blanche itevene, makes a fine bush plant. Teresa, ra-cotta, is excellent for supplying cut flowers market, and it has no equal; F. Spring atts, chestnut and gold, of dwarf habit, very e; Huntsman, rich chestnut-crimson; Sunine, lovely golden amber; Josephine Bernier, ep rose-pink; and Pamela, bright chestnut, th gold reverse, are all excellent; Mollie dfrey, Bronze Molly, and Susan are worth owing, to flower from December to middle of nuary, and their blooms sell well. Chrysthemums do not deteriorate. I grow a large antity for exhibition, and never have any ouble in securing good cuttings each year; nor ve I any rested stock. A grower always inks about getting his blooms to perfection, erefore he top dresses his plants several times ring the growing season to encourage his stock r cuttings), as well as help the development of wer buds. *Chrysanthemum Grower.*

Romneya Coulteri.—Sir Herbert Maxwell's or success with Romneya Coulteri at onreith, and its luxurious growth at Castle ennedy, suggests that there are at least several rms of that Mexican Poppy. My own experice seems to confirm this suggestion. In a uth Devon garden I had a plant that came om Messrs. Backhouse, somewhere about 20 ars ago. This plant sent out suckers all und, and to some distance from the original ant; these I successfully transplanted, doing in early April. That garden I left. condly, ten years ago, I got another plant r my present garden, this time from Cumbernd, and this plant has never sent out a single cker; on the contrary, it seems to grow from short, woody stem, and it has never been free flowering as was the Yorkshire form. an any of your correspondents, in the trade otherwise, state whether there is still the orkshire form (semi-herbaceous it seemed); or, the nurserymen now graft Romneya on some her stock? If this is the case, or if there e two distinct forms of Romneya Coulteri, the fficulty some have in its cultivation may be counted for. *Western Wight.*

SOCIETIES.

ELGIN HORTICULTURAL.

AT the meeting of the Elgin Horticultural Society on Wednesday, the 28th ult., Mr. Peter Leslie, Lecturer on Forestry in Aberdeen University, delivered an address on "David Douglas's Work in Forestry." Although we had shown ourselves in the matter of national forestry very backward compared with the work done in France, Germany, and many other countries, Mr. Leslie said, there were two branches of the arboricultural art in which we had held more than our own. These were the exploring of new countries in search of species and the experimental work with species thought likely to be suitable to our conditions. To-day there were to be seen in Britain woods and arboretums of splendid trees which had been transferred from their native habitat to adorn our landscapes or to be planted as useful woods. In the fine work of tree discoveries the arboriculturist will find no more famous name than David Douglas, who made known to science many remarkable trees and plants hitherto unheard of, and who was responsible for the introduction of many of our most useful and ornamental species. Born at Scone, Scotland, in 1798, David Douglas was apprenticed as a gardener in the gardens of the Earl of Mansfield, Scone Palace, Perthshire. From thence he obtained an appointment in the Glasgow Botanic Gardens, where he attracted the attention of Professor Hooker, of the chair of botany in Glasgow University, who, noting Douglas's abilities, recommended him for a botanical expedition to North America. The results of Douglas's research work abroad may to-day be seen in the policies of our castles and mansion houses. The splendid specimens of Douglas Firs, Western Hemlocks (Tsugas), Western Red Cedars (Thuja), Silver Firs (Abies grandis), and A. nobilis, usually to be seen in this country were introduced by Douglas. On nearly every estate in Scotland one will now find plantations of Douglas Fir and Sitka Spruce. True, Douglas did not discover the Douglas Fir, but he was the first man to send home seed of the species. Its success led to experiments with many other American species, but although many of them had turned out suitable to our conditions, the chief interest still attached to the Douglas Fir, and to one other, the Sitka Spruce, which was not introduced till later. The great hold the Douglas Fir has taken in this country will be better understood when it is stated that the Forestry Commission are now setting out millions of these trees annually, and so with the Sitka Spruce. From the Forestry Commission's nurseries at Craibstone, Aberdeen, there are being sent out annually five to six million Douglas Fir plants, and a similar number of Sitka Spruce. These are being planted all over Scotland and England, and one has only to take a tour through the wooded districts of Scotland to note the wonderful transformation the introduction of these species has had upon the appearance of the countryside. Do they not form, too, a fitting monument to the humble discoverer, the former gardener of Scone, of 100 years ago? Unfortunately, Douglas met an untimely end in the Sandwich Islands in 1834, where he fell into a pit and was killed by an infuriated bullock.

THE NEWCASTLE AND DISTRICT HORTICULTURAL.

THERE was a very large attendance of members at the monthly meeting of the Newcastle Horticultural Mutual Improvement Society, on the 27th ult., when Mr. Keith, gardener to Sir G. O. Trevelyan, Bart., Wallington Hall, Cambo, Northumberland, gave a lecture on "Sweet Peas."

Mr. Keith stated that the Sweet Pea was introduced into this country in 1700, and that there were only three varieties until 1800. Very little improvement in its cultivation was made until 1870, when Mr. Henry Eckford raised some fine varieties year after year.

Dealing with the cultivation of the Sweet Pea, Mr. Keith said that basic slag and farmyard manure should be incorporated with the soil, which should be trenched three feet deep. The seed should be sown in pots in January, and when the seedlings have formed three leaves, the point of the shoot should be stopped, to produce strong side growths. The plants should be ready for planting out-of-doors in April. In his opinion the best varieties included Picture, Constance Hinton, Royal Scot, Matchless, Renown and Charity.

The special prize of the evening was won by R. RICHARDSON, Senr., a veteran of 84, for a fine specimen of Cyclamen.

Sympathetic reference was made to the death of Mr. J. Bell, of Benton, one of the oldest members of the committee, and Major Stansfield, Whitley Bay, a Vice-President, and a generous supporter of the society in general. The Society's spring show will be held on March 24.

NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

3014.—Brown, C. A.—Garden, etc., rollers. February 1.

2628.—Moare, R. R.—Garden rake and harrow. January 29.

3258.—Johnson, L.—Device for cutting turf, etc. February 3.

3084.—St. Barbe, S. L. F.—Machines for brushing lawns, etc. February 1.

2378.—Bailey, A. J.—Vases, etc., for plant culture. January 26.

1882.—King, F.—Shears, etc., for clipping hedges, grass, etc. January 22.

1598.—Pugh, Ltd., C. H.—Lawn mowers, etc. January 18.

3666.—Agricultural Products, Ltd.—Eradication of sucking insects, etc. February 7.

SPECIFICATIONS PUBLISHED THIS MONTH.

172,016.—Deutche Gold und Siber-Scheide-Anstalt Vorm Roeseller.—Treatment of seeds for Agricultural purposes.

192,903.—Keighley, F.—Apparatus adapted for mixing, grinding, and distributing manures, sand, gravel, and other materials, for mixing and distributing seeds, and for mixing and spraying liquids.

192,322.—Hansen, H.—Dibble.

192,335.—Pocock, L. D.—Fertilisers.

191,775.—Kershaw, H., and Clarke, H.—Apparatus for spraying or atomising liquids

191,793.—Mai, Dr., A.—Process of making arsenical solutions and suspensions for insecticidal, fungicidal, preservative and like purposes.

171,151.—Zellstoffabrik Waldhof.—Manufacture of fertilisers.

191,646.—West, C. E.—Tool for extracting weeds from soil.

ABSTRACT PUBLISHED THIS MONTH.

Fruit Picker.—Patent No. 190,834.—A new fruit-picking device for use on trees and which enables the operator to stand on the ground, has been devised by Mr. C. H. Thomason, Glenisla, Botteville Road, Acocks Green, Birmingham. The apparatus comprises a V-shaped member fixed rigidly to a rod, carried adjustably by a long arm which carries also a rigid ring, greater in diameter than the length of the V-shaped member, to which is attached a flexible chute long enough to reach to the operator's hand.

This list is specially compiled for *The Gardeners' Chronicle* by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London, from whom all information relating to patents, trade marks and designs can be obtained gratuitously.

TRADE NOTE.

MR. W. R. ALLAN, who had an extensive horticultural education both in England and on the Continent, son of Mr. Allan, late Gardener at Hillingdon Park, and grandson of Mr. Allan, Gunton Park, Norfolk, is now acting as Messrs. W. Wood and Son's representative for the county of Surrey.

ANSWERS TO CORRESPONDENTS.

CATTLEYA LODDIGESII: *T. B.* The dead flowers should be removed, and the plant kept moderately dry until new roots are seen to be developing, when, if the compost is decomposed, it should be repotted in a compost consisting of fibre and live Sphagnum moss. The reason of the leaves turning yellow is subjecting the plants to a low temperature, or affording the roots too little or too much water. This Orchid requires a temperature of about 60 degrees at all times, and resents over-potting. The pseudo-bulbs should not be cut as you suggest, but when repotting the plant, any leafless, useless pseudo-bulbs at the back of the plant should be removed. The new shoots at the base of the pseudo-bulbs that have flowered will form pseudo-bulbs and flower again in the normal season, if the plant is encouraged to make satisfactory growth.

DAPHNE CNEORUM: *G. E. M.* Take cuttings in spring, as soon as the young growths are long enough. Insert firmly in a sandy compost, and place under a bell glass in a little heat until they are rooted. When rooted, gradually harden them off, and keep in a cold frame until the autumn. By this time they should be well rooted and ready to pot off. Another method of propagation is by means of layers. This is a better method, and may be performed also in spring; cover the layered branches with soil, after fixing them firmly, leaving only the growing points free.

EUCHARIS GRANDIFLORA (syn. Eucharis amazonica): *T. W. C.* The potting compost for Eucharis should consist of good, rich, fibrous loam, using two parts of this to one of flaky leaf soil, with the addition of some dried cow manure, and enough coarse, clean sand and charcoal to keep the whole open and sweet. As Eucharis enjoy ample supplies of water, ample drainage is necessary. Rather large pots are necessary; six strong bulbs should be enough for a 10-inch pot. After potting, water should be given carefully until the bulbs have made plenty of fresh roots. A temperature of 65° to 70°, rising to 80° during the summer, is necessary. It is an advantage if the pots are plunged in a bed of fibre refuse, over bottom heat, although Eucharis grow quite well stood on a stage in a stove. They also do well if planted out in a well-drained bed, over bottom heat, but too much bottom heat tends to weaken them and lay them open to attacks of bulb mite. Several crops of flowers may be obtained in one season by resting the plants for a time after they have completed their growth, but as they are evergreen plants they should not be dried off too much; in short, they should never lose any foliage in the process. If grown in pots this rest is best given by keeping them drier and in a slightly lower temperature for a few weeks after flowering. Plants with plenty of roots and in good health enjoy frequent applications of dilute liquid manure, alternated with some approved fertiliser; a good guano being safe and as good as anything. Over manuring, and attempts to get too frequent crops of flowers, nearly always result in the plants being weakened. Although not so largely grown for market at the present day, there is no reason why you should not secure a good return for the flowers, as choice white blooms are always in demand, and especially so at Easter time.

LINUM NARBONENSE: *G. E. M.* This Linum is best propagated by means of seeds, but cuttings may be used. These should be taken in the spring, as soon as the young shoots are long enough to handle. Remove them with a heel, if possible, but this is not necessary. Insert the cuttings in very sandy soil, and place them under a bell glass in a little heat. They take rather a long time to root, and should not be potted off until plenty of roots have formed.

MARKETS.

COVENT GARDEN, Tuesday, March 6, 1923.

Fruit: Average Wholesale Prices.

	s. d. s. d.
B.C. Apples—	
—Spitzenberg..	12 0–13 0
Californian Newtown ..	10 6–12 0
Oregon Newtown	12 0–14 6
English, per bus.	
—Bramley's Seedling ..	4 6– 6 0
—Newton Wonder	4 0– 6 0
Nova Scotian,	
—Baldwin ..	15 0–18 0
—Fallawater ..	14 0–18 0
—Russet	28 0–32 6
—Ben Davis ..	15 0–18 0
Bananas, singles	20 0–27 6
—doubles ..	25 0–30 0
Grapes	
—Almeria, barrel	25 0–28 0
—Gros Colmar..	2 9– 4 6
—Belgian Colmar	2 6– 3 6
Grape Fruit	
—Jamaican ..	35 0–37 6
Lemons—	
—Messina boxes	14 0–20 0
—Murcia	18 0–26 0
Nuts—Brazils ..	45 0–47 6
—Cob	3
Oranges,	
—Denia	12 0–30 0
—Murcia	12 0–28 0

	s. d. s. d.
Oranges—	
—Seville	12 0–15 0
—Bitter	7 0– 9 0
—Jaffa	10 0–12 0
Pears—Winter Nelis, case ..	27 0–28 0
—Stewing, ½ bus.	2 6– 3 6
Pineapples, each	1 6– 5 6
Tunis Dates, doz. cartons	4 6– 6 6
South African Fruit	
—Grapes	
Colmar ..	12 6–15 0
Red Hannapoot	12 0–15 0
White Hannapoot	10 0–14 0
—Hermitage ..	7 0– 8 0
—Peaches, box	8 0–18 0
—Pears—	
Beurré Hardy	5 0– 6 0
Clairgeau ..	3 0– 3 6
Duchess ..	3 6– 4 0
—William's Bon Chretien ..	2 6 – 4 0
—Plums, Wickson box	5 0– 6 0
Kelsey	7 0–10 0
Apple Plums	7 0– 8 0

Vegetables: Average Wholesale Prices.

	s. d. s. d'
Asparagus, bundle	
—Special Devon	10 0–10 6
—French	9 0–14 0
Beans—	
—Guernsey, lb.	2 6– 3 0
—Madeira basket	3 0– 8 0
—Worthing ..	2 6– 3 6
Belgian Chicory per lb.	– 2½ –3½
Beets, cwt. ..	3 0– 5 0
Cabbage, tally ..	2 0– 3 0
Carrots, cwt. ..	2 0– 3 0
Cauliflowers, doz.	1 6– 2 6
Celery, roll ..	1 3– 2 6
—Celeriac, doz.	2 0– 2 6
Cucumbers, doz.	10 0–18 0
Endive, doz.—	
—English.. ..	– — 2 0
—French	2 0– 3 0
Greens, bag ..	1 6– 2 0
Lettuce French	1 6– 1 9
Mint, doz. ..	4 0– 8 0
Mushrooms, lb.	1 3– 2 6

Onions.	s. d. s d
—Dutch, bag ..	3 0– 3 6
—English, cwt.	4 0– 4 6
—Valencia, case	6 0– 7 6
Parsnips, cwt. ..	2 0– 3 0
Potatos,	
—Canary Island case	17 0–18 0
—Algerian ..	– 2—2½
—Guernsey, new, lb.	0 9 –0 11
—Dunbar ..	£5 10– – –
—King Edward..	£3 5–£4 0
—Others ..	£2 10–£3 5
Rhubarb, forced, doz.	2 0– 2 3
—Natural ..	5 6– 7 0
Radishes, doz...	1 0– 2 0
Savoys, tally ..	3 0– 5 6
Seakale, punnet	1 3– 1 9
Scotch Kale ..	1 0– 1 6
Spinach, bushel	2 0– 2 6
Tomatos	
—Canary Islands	16 0–22 6
Turnips, cwt. ..	2 0– 3 0

REMARKS.—The demand has responded to the improvement in weather conditions, and a better tone is noticeable. The various fruits from South Africa, such as Peaches, Plums, Pears and Grapes, have sold freely and the market is clear at the time of writing, in readiness for this week's boat, deliveries from which are a day overdue. Fairly large quantities of English Apples come to hand, and first-grade fruit is in better demand, but there is practically no market for Apples out of condition. Newtown Pippins and other dessert varieties from North America are selling better, the supplies being rather more restricted. The demand for Oranges and Lemons is slightly better, and the Banana trade is steady. Canary Island Tomatos are cheaper owing to increased arrivals. There is an easier tendency for all forced vegetables, and French Beans, Asparagus and new Potatos are selling at lower rates. Forced Rhubarb is quoted lower. larger quantities of natural growth influencing the value. Cauliflowers from France and Guernsey, as well as home-grown, are plentiful and cheap. Increased quantities of Mushrooms are available, but prices are steady. Green vegetables remain at a low level, and the Potato trade is unchanged.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz. ..	10 0–18 0
—elegans ..	10 0–12 0
Aralia Sieboldii..	10 0–12 0
Araucarias ..	30 0–48 0
Asparagus plumosus ..	12 0–15 0
—Sprengeri ..	12 0–18 0
Aspidistra, green	48 0–72 0
Asplenium, per doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Azaleas, 48's per doz.	30 0–48 0
—60's	18 0–24 0
Cacti, per tray, 12's, 15's ..	5 0– 6 0
Cinerarias 48's perdoz. ..	15 0–18 0
Crotons, per doz.	30 0–42 0
Cyclamens, per doz.	24 0–30 0

	s. d. s. d.
Cyrtomium ..	10 0–15 0
Erica melanthera	
„ 48's per doz.	24 0–36 0
„ nivalis 48 „	24 0–30 0
„ 60 „	10 0–15 0
„ Thumbs „	6 0– 8 0
Genistas 48's per doz. ..	15 0–18 0
Marguerites, per doz.	18 0–24 0
Nephrolepis, in variety ..	12 0–18 0
—32's	24 0–36 0
Palms, Kentia ..	24 0–30 0
—60's	15 0–18 0
—Cocos ..	24 0–36 0
Pteris, in variety	12 0–21 0
—large 60's ..	5 0– 6 0
—small	4 0– 4 6
—72's, per tray of 15's ..	3 6– 4 0

Cut Flowers, etc.: Average Wholesale Price

	s. d. s. d.
Adiantum, decorum, doz. bun.	12 0–15 0
—cuneatum, per doz. bun. ..	8 0–10 0
Asparagus, plumosus, per bun.	
long trails, 6's	4 0– 5 0
med. sprays ..	2 6– 3 6
short „ ..	1 0– 1 6
—Sprengeri, per bun.	
long sprays ..	2 6– 3 0
med. „ ..	1 3– 1 6
short „ ..	0 9– 1 0
Azalea white per doz. bun. ..	5 0– 6 0
Camellias, white per box ..	2 6– 3 0
Carnations, per doz. blooms ..	2 6– 5 0
Croton leaves, var., per bun.	2 6– 4 0
Chrysanthemum per doz. bun.	
—white	36 0–48 0
—per doz. blooms	
—white	5 0– 9 0
Daffodils	
—Golden Spur per doz. bun.	4 0– 6 0
—Victoria ..	12 0–15 0
—Emperor ..	10 0–12 0
—Henry Irving	4 0– 5 0
—Princess ..	4 0– 5 0
—Sir Watkin ..	9 0–12 0
—King Alfred..	18 0–24 0
—Narcissus, Paper White, per doz. bun...	5 0– 6 0
—Soleil d'Or, per doz. bun. ..	3 0– 5 0
—Ornatus ..	7 0– 8 0
Fern, French per doz. bun. ..	1 0– 1 3
Forget-me-not per doz. bun. ..	4 0–12 0
Freesia, white, per doz. bun...	3 0– 6 0
French Flowers	
—Acacia (Mimosa) per bunch ..	1 6– 2 0
—Anemone, mxd. per doz. bun...	6 0– 7 0
—Lilac, white, per doz. sprays	4 0– 6 0
—Marguerite, yellow, per doz. bun.	3 6– 4 0
—Stock Double White per pad	6 0– 8 0
—Ranunculus, Scarlet, per dz. bun.	6 0– 7 0

	s. d. s
Carmine per doz. bun. ..	8 0– 9
Narcissus	
Orange, per doz. bun. ..	3 0– 4
Scarlet, Romano large, per doz. bun.	10 0–15
—Violets, Parma per bun. ..	3 0– 0
Single per doz.	2 0– 2
Heather, white per doz. bun.	4 0–10
Hyacinth, white, per doz. bun...	6 0– 9
Iris tingitana, per doz. bloom	4 0– 6
Lilium speciosum long per doz.	6 0– 0
short „ „ ..	3 0– 4
Lily of the Valley, per doz. bun.	18 0–30
Orchids, per doz.	
—Cattleyas ..	18 0–30
—Cypripediums	3 0– 4
Pelargonium, per doz. bunch, double scarlet	10 0–12
Richardias (Arums) per doz. ..	5 0– 8
Roses, per doz. blooms—	
—Melody ..	10 0–15
—Ophelia ..	12 0–15
—Richmond ..	5 0– 9
Smilax, per doz. trails	4 0– 5
Snowdrops per doz. bun. ..	2 6– 3
Tulips, Single—	
—white, per doz. bun.	10 0–12
—yellow, per doz. bun.	18 0–21
—pink, per doz. bun.	15 0–18
—scarlet, per doz. bun.	15 0–18
—terra cotta, per doz. bun. ..	12–0–15
—mauve, per doz bun.	24 0–30
—double pink per doz, bun.	18 0–24
—double yellow per doz. bun...	24 0–30
—double red per doz. bun. ..	24 0–30
—Darwins in variety, per doz. bun. ..	27 0–30

REMARKS.—The supply of flowers from the Scilly Isl was restricted last week, as the inclement weather he up the boats. Guernsey flowers sold out at a fair ra as a consequence. Good Tulips were a much short supply this morning, as also were good Soleil d' Narcissi. Arums are more plentiful, but good Narcis ornatus remain at a firm price. A few cases of whi Chrysanthemum blooms arrive occasionally, but bunch of these flowers are practically finished for this sea

GARDENING APPOINTMENTS.

Mr. G. T. Burgess, previously gardener to Ca E. H. MOLYNEUX, Pavillon Talma, Maisons Laffit as Gardener to OTIS MYGATT, Esq., Chalet Buzenval, Garches, France. (Thanks for 2s. 7d. R.G.O.F. Box.—EDS.)

Mr. A. S. Shaw, previously Foreman at Doverid Hall, Derby, Hints Hall, Tamworth, Gledh Hill, Leeds, and Gledhow Hall, Roundhay, Lee as Gardener to N. A. Gates, Esq., Kirkfield, Ba don nr. Shipley, Yorkshire. (Thanks for 2s. for R.G.O.F. Box.—EDS.)

Mr. W. G. Gristwood, for the past eight yea Gardener to SIR THOMAS LENNARD, Henbury H House, nr. Bristol, as Gardener to P. STEADM Esq., at the same place.

CATALOGUES RECEIVED.

Seeds.

GEORGE ELSOM, Spalding, Lincs.
McHATTIE & CO., Chester.

Plants.

ALLWOOD BROS., Wivelsfield Nurseries, Haywar Heath, Sussex.—Carnations.

Foreign.

CAYEUX AND LE CLERC, 8, Quai de la Megisserie, Par —Seeds.
FR. DE LAET, Contich-Village-lez-Anvers, Belgium.—Ca

SCHEDULES RECEIVED.

Scottish National Sweet Pea, Rose and Ca nation Society.—Show to be held in St. Andrew Hall, Glasgow, on Wednesday and Thursday, July and 26.—Secretary, Mr. J. Smellie, Westwood Cotta Helensburgh.

THE
Gardeners' Chronicle
No. 1890.—*SATURDAY, MARCH* 17, 1923.

CONTENTS.

Ash, canker of 146
Association of Economic Biologists 142
Balfour, the late Professor Sir I. Bayley .. 141
Books, notices of—
 How to Form a Company 151
 Rose Annual, 1923 .. 141
 The Culture of Pot Plants 151
British Mycological Society, spring foray of the 142
Cultural memoranda—
 The propagation of Himalayan Rhododendrons 146
 The Propagation of Dracaenas 146
Fruit garden, market .. 150
Fruit register— 150
Fungous diseases of crops 141
Gardens at Olympia .. 151
"Gardener's Chronicle" seventy-five years ago 143
Gardeners' wages .. 151
Gaston, Mrs. A. J., presentation to 142
Horticultural traders and taxation 148
ndoor plants—
 Camellias 145
 Rehmannia angulata 145
reland, notes from .. 147
Jardin des Plantes at Montpellier 146
Kew, the British Forestry Museum at .. 142
Legacies to gardeners .. 143
McBean, Mr. A. A. .. 142
Obituary—
 Greening, E. Owen .. 154
 Maclennan, Geo. .. 154
 Plymouth, Earl of .. 154
Orchid notes and gleanings—
 Miltonias 145
 Potinara Lowii .. 145
Painters, early botanic 148
Plants new or noteworthy—
 Rhododendron praeteritum 143
Poppy, the Shirley .. 149
Rainfall, heavy 142
Rhododendrons on limestone 151
Rose garden at Bagatelle 143
Rose trial at Wisley .. 141
Societies—
 Elstree and District Horticultural .. 152
 Reading and District Gardeners' .. 152
 Royal Horticultural 152
Usk Priory 147
Vegetable garden—
 Carrots 150
Week's work, the .. 144
Wilks, the late Rev. W. 142

ILLUSTRATIONS.

Ash, canker of 146
Marguerite, a bed of the double, yellow-flowered .. 145
McBean, Mr. A. A., portrait of 142
Papaver silvestris from a painting by Jacques le Moyne de Morgues 149
pring garden arranged by Messrs. J. Carter and Co. at Olympia 151
rachycarpus excelsa, a fine specimen of, at Usk Priory 147

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 41.6°.

Actual Temperature:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 14, 10 a.m. Bar. 30.4; temp., 43°. Weather—Dull.

Fungous Diseases of Crops.*

The Ministry of Agriculture's Report on the occurrence of fungous, bacterial and allied diseases on crops in England and Wales for he years 1920-1921 is a work which reflects he greatest credit on Mr. A. D. Cotton and is collaborators, and it is to be regretted hat the appointment of Mr. Cotton to the ost of Keeper of the Herbarium at the Royal Botanic Gardens, Kew, deprives the Ministry of the services of such an able and nthusiastic mycologist. The Report for the ears 1920 and 1921 contains information of much practical and scientific value. The ears 1920 and 1921 were markedly different ith respect to weather. The summer of 920 was exceptionally cold and wet and that f 1921 even more exceptionally warm and ry. Hence these years provide an opportunity of observing the extent to which weather mitigates or accentuates plant diseases. They provide, moreover, a means of aining some insight into the effect of one eason's weather on the prevalence and intensity of disease in the ensuing year. Anyone who peruses the Report will be impressed with the plenteousness of the harvest of ungous pests which has been garnered in t. No fewer than three hundred and inety-one diseases due to fungi and bacteria re recorded. Of this number, fruit crops suffer from not far short of one half, the ale of their fungous afflictions numbering ne hundred and fifty. Vegetables, between them, give harbourage for eighty-two kinds of fungi and bacteria and the Potato has twenty-one of these pests all to itself. Foremost among the fungous pests of the Potato is, of course, Late Blight, due to Phytophthora infestans. In the wet year, 1920, it appeared early. It broke out in Cornwall in April, showed itself in the Channel Islands in May, and spread widely in the West of England and in Wales in June. So seriously were main-crop varieties affected in the south and west that many crops contained fifty per cent. of diseased tubers. The varieties which suffered least from blight were the wart disease immune variety, Kerr's Pink and the wart-disease non-immune varieties President and Evergood. A report by Mr. W. H. Lawrence gives valuable information on the effect of lifting or cutting down the haulm of badly-diseased Potato crops. This practice, which is often advocated, appears to be commendable if the haulms are cut and removed as soon as the disease appears, and the tubers lifted a month later; if, on the other hand, the haulms are cut later, after the disease has made headway, little or no advantage accrues, for the tubers have already become affected by the fungus. In the warm, dry year 1921, Late Blight appeared much later and spread much less widely. Nevertheless, as Mr. Whitehead notes, though the tops were clean, the tubers were often diseased. There can be little doubt but that much Late Blight disease is carried in the tubers and that the disease of the tubers in 1921 arose from this cause. An interesting case which appears to confirm this opinion came under our own notice in 1922. Seed from Scotland and own saved seed were planted; the latter had been obtained from a clean and early-lifted crop. It gave but little disease in 1922, whereas the crop from the northern seed was lost owing to Late Blight. Needless to say, this is no reflection on the general excellence and superiority of Scotch seed, but only an instance serving to show that if diseased seed, no matter of what provenance, be used, diseased crops of Potatos will result. Of other Potato diseases, it is useful to note that Corky Scab—due to Spongospora subterranea—appears to be susceptible of a large measure of control by the use of flowers of sulphur. Experiments carried out at Leeds by Mr. W. A. Mallard show that by the use of flowers of sulphur at the rate of six cwt. to the acre, the disease was reduced from fifty-four per cent. to seven and a half per cent. Generally speaking, and as would be expected, diseases flourished in the wet season of 1920 and declined in the dry season of 1921; but an exception is recorded in the Report. Scab, which is caused by Actinomyces scabies, is a disease of dry, hot seasons, and was very prevalent in 1921. Fortunately, this disease may be combated by a system of green manuring. Under field conditions, Rye or Rye and Vetches are grown and ploughed in; and under garden conditions plentiful supplies of grass cuttings or leaf mould serve to check the disease. The diseases of vegetable and fruit crops dealt with in the Report are so important that they must be dealt with separately in a later article.

The Late Sir Isaac Bayley-Balfour.—The valuable notice of the life and work of Sir Isaac Bayley-Balfour, which is published in the *Kew Bulletin* (No. 1, 1923), refers to two projects in the inception of which Balfour played a large part, the results of which will be looked forward to by horticulturists with much interest. One is the establishment of a "wild" alpine garden in Scotland. The idea that such a garden planned on a liberal scale should be made was first put forward by Mr. A. K. Bulley. It was received with enthusiasm by Balfour, and, thanks to his power of getting things done, it now bids fair to be realised, Lord Airlie having allowed land within the Caerlochan deer forest to be used for the purpose. The other is that of a large planting of Rhododendrons in one of the suitable forests under the control of the Forestry Commission. Balfour contemplated one on the west coast, near Ben More. It is a solace to his friends who find his loss so grievous to know that when these undertakings are accomplished there will be memorials of enduring and increasing beauty, which should keep green the memory of this great botanist.

Rose Trial at Wisley.—The Director of the Royal Horticultural Society's gardens, Wisley, asks us to remind those who intend sending Roses for the Rose trials at Wisley, that the last day on which they can be accepted is Saturday, March 31.

Ghent Quinquennial Exhibition.—British horticulturists who will be acting as judges at the great Ghent Exhibition in April, or attending the International Commercial Horticultural Conference as delegates, may look forward to a busy time, as the following is the preliminary programme of engagements and functions:—Friday, April 13: 2 p.m., meeting of the juries and commencement of judging; 5 p.m., refreshments; 8 p.m., performance at the Grand Theatre Français. Saturday, April 14: 10 a.m., opening of the Ghent Exhibition by H.M. The King of the Belgians; 2 p.m., first meeting of the International Commercial Horticultural Conference; 5 p.m., grand banquet offered to members of the juries; 8 p.m., evening entertainment and ball given by Comte de Kerchove, Governor of the Province. Sunday, April 15: 11 a.m., inauguration of the monument to the late Comte de Kerchove, formerly President of the Ghent Show; 12 noon, reception of members of the Conference and members of the juries by the Chambre Syndicale des Horticulteurs Belges; 8 p.m., official reception by the municipality of Ghent at the Town Hall. Monday, April 16: visit to the famous Winter Garden at the Chateau Royal, Laeken, near Brussels. Tuesday, April 17: 9 a.m. and 2 p.m., meetings of the International Horticultural Commercial Conference; 7 p.m., banquet offered by the Chambre Syndicale des Horticulteurs Belges to the International Delegates.

Imperial Botanical Conference, 1924.—At a representative meeting of botanists held at the Linnean Society's rooms on Friday, March 2, it was decided to hold a Conference of British and Overseas Botanists next year, about the beginning of July. An executive committee was appointed with Sir David Prain as Chairman, Mr. F. T. Brooks as Hon. Secretary, and Dr. A. B. Rendle as Treasurer.

The "Rose Annual," 1923.—The publication of the National Rose Society's *Annual* is looked forward to with great interest by lovers of Roses, as it is invariably instructive, well illustrated and an altogether useful work. The issue for 1923 is well up to the high standard maintained during recent years, and contains numerous coloured illustrations of Roses, most of which are excellent reproductions, though a few are not quite happy. Nur Mahal, Mrs. Henry Bowles and Elsie Beckwith are new varieties finely represented in colour. There are also numerous half-tone illustrations of Roses which have been honoured by the National Rose Society. The text includes an interesting and useful article on "Roses for Beginners," which shows that the society bears in mind the needs of novices in Rose culture. Charmingly written is "Fragrance in Modern Roses," by Mrs. H. R. Darlington, and its companion article, "Scented Roses," by Mr. E. J. Holland, is a transcript of the lecture Mr. Holland gave before the Royal Horticultural Society in June, 1921, and before the National Rose Society in January of the present year. Mr. Holland concludes by observing that scent is a desirable attribute, and of two Roses of equal merit in other respects preference should undoubtedly be given to the one with perfume, while the perfume most to be desired is the real Rose scent of the Damask and Provence section. Although not "an ancient of days," Mr. G. M. Taylor has contributed a thoughtful article on "Old-fashioned Roses" that will make a strong appeal to veteran rosarians. Mr. Courtney Page, the editor, discusses some of the newer Roses, makes reference to the possibility of a Rose-testing garden, and states that "now normal times are returning, the membership of the society is increasing at such an extraordinary rate the council have hopes that ere long the matter will take a definite form. They have definitely decided, however, that when a Rose trial garden is set up, such garden shall be run by and under the direct control of the society." Mrs. F. A. Simmonds gives useful advice on the "Indoor Arrangement of Roses," while M. Ch. Cochet-Cochet refers to the "Roses of Ancient Egypt." Reports of the spring, summer, autumn and provincial exhibitions of 1922 follow, and there is also a short article on "Roses in California." A considerable amount of space is occupied by short treatises by prominent rosarians, who, with varied experience, discuss the "Preparation of Rose-beds on Various Soils." Mr. J. Ramsbottom makes interesting reference to the "Earliest Description of a Rose Disease." Mme. Siret contributes a report on Bagatelle trials, and Mr. J. H. McFarland sends notes on "New American Roses of 1922," while Major C. C. Hurst contributes a second article on "Notes on the History of the Moss Rose." The issue concludes with an audit of Roses suitable for various purposes, and a gracious appreciation of the late Mr. Hugh Dickson.

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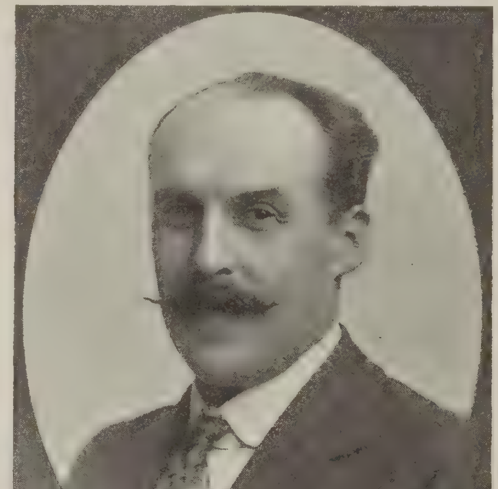
* "Fungus Diseases of Crops, 1920-21." Ministry of Agriculture, *Miscellaneous Publications*, No. 38, 1922. Price 3s. net, post free.

Presentation to Mr. A. J. Gaston.—As already reported in our columns, Mr. A. J. Gaston recently retired from the post of secretary to the Brighton, Hove, and Sussex Horticultural Society, after having held the position for twelve years. To mark its appreciation of his services, the Society voted an honorarium of £20 on his retirement, but as so many horticultural friends, as well as cricket enthusiasts who admired his writings on this branch of sport, considered the moment opportune for a larger testimonial, the £20 became the foundation of a fund which reached the handsome sum of £150. This amount, in the form of a cheque, accompanied by an address, was presented to Mr. Gaston, at the Pavilion Restaurant, Brighton, on the 28th ult., in the presence of a large company of friends.

Heavy Rainfall.—The country generally has experienced very heavy rainfalls during the past week, and considerable areas of land have been flooded, rendering operations on the ground impossible. London has received its full share of the rain; between eight p.m. on Monday last and noon of the following day it is computed that the total fall in the London area amounted to 45,000,000 tons.

The British Forestry Museum at Kew.—At a time when every civilised country is paying attention to the preservation of forests and the maintenance of a regular supply of timber, attention may very usefully be drawn to the Forestry Museum at Kew (No. 4 Museum). Formerly the residence of the late Duke of Cambridge, this museum has been arranged in order that some of the outstanding problems of home forestry may be readily examined by visitors. The building consists of six rooms open to the public, and these contain a large collection of specimens of timber grown in Britain, photographs of forest scenery and individual trees, insect pests and fungous diseases of trees, and articles such as cricket bats, tennis racquets, violins, brushes, etc., manufactured from home-grown timber. The *Official Guide*, price 1s., on sale in the museum, is not only a catalogue of the exhibits displayed, but a very valuable book of reference for those interested in forestry. It has 143 pages, with a good index at the end. The contents of Room IV., which is largely devoted to insect pests and fungous diseases of trees, should be of immense value to foresters and students of forestry. In the *Guide*, 60 pages are devoted to this most important subject, descriptive of 180 exhibits in this room. In addition to a general review of the subject, protective measures are recommended; for instance, to deal with the Pine Aphis (Chermes corticalis), which is very injurious to the Weymouth Pine, it is recommended to spray the trees with a paraffin wash every ten days in late April and May.

Mr. A. A. McBean.—It was in 1897 that the late Mr. James Ure McBean commenced business as a florist, but it was not until some fifteen years later that he commenced the cultivation of Orchids for the purpose of producing choice cut flowers. His son, the present owner of the Orchid growing and raising business at Cooksbridge, Mr. A. A. McBean, then a lad, was given a small house and told to do his best to grow Orchids. He proved to be such a successful cultivator that by the year 1902, fully half the nursery was devoted to the cultivation of Orchids. Odontoglossums were the first Orchids to be grown, and as Mr. A. A. McBean managed them so easily, many purchases were made from importations, from which fine varieties appeared occasionally. From this modest beginning of a few hundred plants, the cultivation of Odontoglossums soon extended to many thousands, and once Mr. McBean began to take up the business of hybridising, the stock increased rapidly, and during the past twenty years, few firms have been so successful in producing or introducing fine varieties of Odontoglossums as Messrs. J. and A. McBean. The genus Cattleya was the next to be taken in hand, and to-day seven houses are devoted to the culture of these and nearly allied Orchids. In 1912 Cymbidiums were added, and Orchid growers are ready to acknowledge the prominent part Mr. A. A. McBean has taken in making these free-flowering Orchids so popular and beautiful. From all this it will be gathered that Mr. A. A. McBean is an Orchid grower from choice, as well as by profession, indeed, he is very much in love with his business, and has done much for the advancement of Orchid cultivation. A reference to the awards made to Orchids by the Royal Horticultural Society, shows that Messrs. J. and A. McBean have had a very large share of the First-Class Certificates and Awards of Merit, indeed, it appears that in the year 1921 they were honoured with more of these awards than any other firm in the United Kingdom. Mr. McBean has been a member of the R.H.S. Orchid Committee for over twenty years, and in 1921 he was chosen by the Horticultural Trades' Association to represent the interests of Orchid growers on the R.H.S. Exhibitions Committee.



MR. A. A. McBEAN.

Spring Fungus Foray of the British Myco
logical Society.—The British Mycologica
Society's Spring Foray will be held at Bristo
from Friday evening, April 20, to Tuesda
morning, April 23. The headquarters for th
meetings will be at the Botany Department o
the University, which has kindly been place
at the disposal of the Society. Hotel accommo
dation is available at 12s. 6d. a day inclusive
and members are requested to write as soon a
possible to Professor O. V. Darbishire, Depart
ment of Botany, The University, Bristol (wh
has been good enough to take in hand th
arrangements for the Foray), stating if a singl
or double room is required. Members will b
informed on or about March 20 as to wher
rooms have been allotted. The programme is
follows: Friday, April 20, 8.30 p.m., rece
tion at University: Saturday, April 21, start
10.30 a.m. by charabanc for Ashton Court Par
etc., tea at Horticultural Research Station
8.30 p.m., meeting at the University: Sunda
April 22, morning free; leave 2.30 p.m.
charabanc for wood beyond Bath, and unde
ground Mushroom beds of Messrs. Agaric, Ltd
informal evening meeting; Monday, April 2
start at 10.30 a.m. for Leigh Woods and woo
beyond, 8.30 p.m. meeting. The programme
however, subject to alteration.

The late Rev. W. Wilks.—The remains of t
late Rev. W. Wilks were interred on Wedne
day, the 7th inst., in the pretty churchyard
tached to the Parish Church at Shirley, ne
Croydon, where he was vicar for over thir
years. The funeral service, conducted by t
Vicar of Shirley, the Rev. George Jones, w
largely attended, amongst those present bei
many prominent horticulturists, including Lo
Lambourne, President of the Royal Horticultur
Society; Mr. W. R. Dykes, secretary; M
C. T. Musgrave, Mr. W. A. Bilney, Dr. A. Hil
Director of Kew Gardens, Mr. W. Cuthbertso
Mr. H. B. May, and Mr. Gerald Loder, mem
bers of the Royal Horticultural Society
Council; the Vincent Square staff, includi
Mr. Frank Reader, Cashier; Mr. H. R. Hutchi
son, Librarian; Mr. C. R. Fielder, Mr.
Streeter, Mr. H. Coppard, and Mr. Coppi
We also noticed Mr. C. G. A. Nix, Mr.
Poupart, Mr. G. Ingram (representing Sir Ha
J. Veitch and the Gardeners' Royal Benevole
Institution), Mr. F. J. Chittenden, Director
the R.H.S. Wisley Gardens; Mr. W. G. L
joit, Controller of Horticulture; Mr. H. G. C
(representing Messrs. Sutton and Sons), Mr.
G. Gingell, Mr. G. F. Tinley (representing t
Gardeners Chronicle and the Horticultural Clu
Mr. M. Mills (representing the National Chr
santhemum Society), Mr. John Gregory, M
Frank Lloyd, and Mr. and Mrs. F. Jordan, la
caretakers of the R.H.S. Hall, and for ma
years associated with the village life of Shirl
The service was fully choral, and the beauti
old Church was filled with parishioners, includi
children of the schools, testifying to the love a
esteem in which the deceased reverend gentlema
was held in the district. His remains were la
to rest near those of his old friend, Mr Arth
Lloyd, a spot he had himself selected.

Association of Economic Biologists.—A gene
meeting of this Association will be held
2.30 p.m. on Friday, March 23, in the Botani
Lecture Theatre of the Imperial College
Science, Prince Consort Road, South Kensingt
London, S.W.7, when Professor J. H. Priestl
(Leeds University), will lecture on "Th
Cansol Anatomy of the Potato Tuber," and M
E. H. Richards (Agricultural Developme
Company, Ltd.), will discuss "Cellulose Deco
position; its Control and Applications."

Local Horticultural Societies.—Windsor R
and Horticultural Society will hold its annu
exhibition on Saturday, June 30, on t
slopes of Windsor Castle, by kind permissio
of His Majesty, the King. The schedule h
been issued, and may be obtained from t
Hon. Secretary, Mr. J. H. Harding, 1, She
Street, Windsor.—Mr. C. A. Cobb has resigne
the position of Hon. Treasurer to the Le
Blackheath, and Lewisham Horticultural Socie
and the members have decided to present hi

with a testimonial, the method and manner of which have been left to the Executive Committee. The Secretary, Mr. J. Gayton, has also retired; during Mr. Gayton's term of office, the membership has increased from forty to three hundred and sixty. The annual show will be held at the Holy Trinity Hall on September 6.—Warwick Horticultural Society, which commenced the year 1922 with a credit balance of £99, has incurred a deficit of £25 on the year's working, due solely to the unfavourable weather on the occasion of the annual show on August Bank Holiday. The Mayor, Dr. H. Tibbits, has been re-elected President. It was decided to hold a show this year, subject to a guarantee fund being raised. A member has offered £5 towards an effort to raise £100.—Sevenoaks Horticultural and Floral Society is holding its annual exhibition on Wednesday, August 1, in the gardens of Knole Park, by permission of Lord Sackville. Visitors to the show will be afforded an opportunity of inspecting the many interesting rooms, and the objects of interest they contain, of this old and historical mansion.—Newcastle Gardeners' Association is holding a spring flower show on the 24th inst., o which admission will be free.

Legacies to Gardeners.—The late Colonel Henry Richard Lloyd Howard, of Wygfair, St. Asaph, and of Harvard Court, Hampstead, who died on December 22 last, left £100 to his bailiff and gardener, Mr. Owen Edwards, "as a small token of his devoted service and in remembrance of the garden we both love so well."—Mr. James Shepstone, of The Elms, Cropwell Butler, Nottinghamshire, who died on September 8 last, bequeathed the sum of £150 to his gardener, Mr. James MacGill, if still in his service.

Appointments for the Ensuing Week.—Tuesday, March 20: Winchester Horticultural Society's meeting. Wednesday, March 21: Wimbledon and District Gardeners' Society's meeting. Thursday, March 22: Royal Botanic Society's meeting; Wargrave and District Gardeners' Society's meeting. Friday, March 23: Association of Economic Biologists' meeting. Saturday, March 24: Newcastle and District Horticultural Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Profitable Employment of Railway Embankments.*—Some time ago attention was drawn to the subject of planting railway embankments with Vines; but I agree with you that this scheme would not answer, our summers being too short for outdoor Grapes to ripen with any degree of certainty. To turn those now large tracts of waste land to a source of profit, and at a comparatively small expense, they should be planted with Larch. Then sleepers, of which immense numbers are wanted, could be grown by the companies themselves, and would realise a handsome profit after all expense as to labour, etc., was paid; for not only could each company grow sufficient for its consumption, but would every year be able to sell quantities for hop-poles. The number of plants required for an acre would be, say, 4,000 at 10s. per 1,000, or £2 per acre. About £2 per acre would also be expended in labour, making a total expense of about £4 per acre. I should plant a portion of line each year, and when the poles become sufficiently large, which will be in eight or nine years, in favourable situations, thin for hop-poles. In about fourteen or fifteen years from the time of planting, the remainder would be fit to cut for sleepers. I would then clear off and replant the ground in the same season, and so continue cutting, clearing, and planting a portion with young plants each year. It may be said this plan will not pay; but look at the beautiful young plantations of Larch which have sprung up in the barren wastes of Scotland, even in some places where there scarcely existed soil to plant in; yet they thrive, and where this plan is carried out, large unproductive wastes will be turned to good account in a pecuniary point of view. And had the plan been adopted on railway embankments when the lines were completed, the different companies might now have been enjoying the profits of their labours. *E F. G., Gard. Chron., March* 11, 1848.

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON PRAETERITUM.

This evergreen species is one of the numerous distinct Rhododendrons introduced in 1900 by Mr. E. H. Wilson, during his first expedition to China, when collecting on behalf of Messrs. James Veitch and Sons. One of the original seedling plants (No. 1,800 Wilson-Veitch) is now (March 8) about 8 feet high, and covered with blossoms in the Rhododendron Dell at Kew.

Upright in growth, the plant has ovate-oblong leaves up to 4 inches or 4½ inches long, and 1½ inches to 2 inches wide. The blossoms are bell-shaped, about 1½ inch wide and long, rich pink in the bud and when opening, but becoming considerably lighter with age, and having a delicate pale mauve shading. There are seven to ten flowers in a truss, forming a compact head 3½ to 4½ inches across. The corolla is five-lobed, which readily distinguishes it from the seven-lobed bloom of R. oreodoxa. It is also a better grower, at least at Kew, almost every growth terminating in a truss of flowers. It is readily raised from seeds. The flowering season is during the second half of February and March. Other interesting species of this group include R. Davidii, R. Fargesii and R. maculiferum. *A. O.*

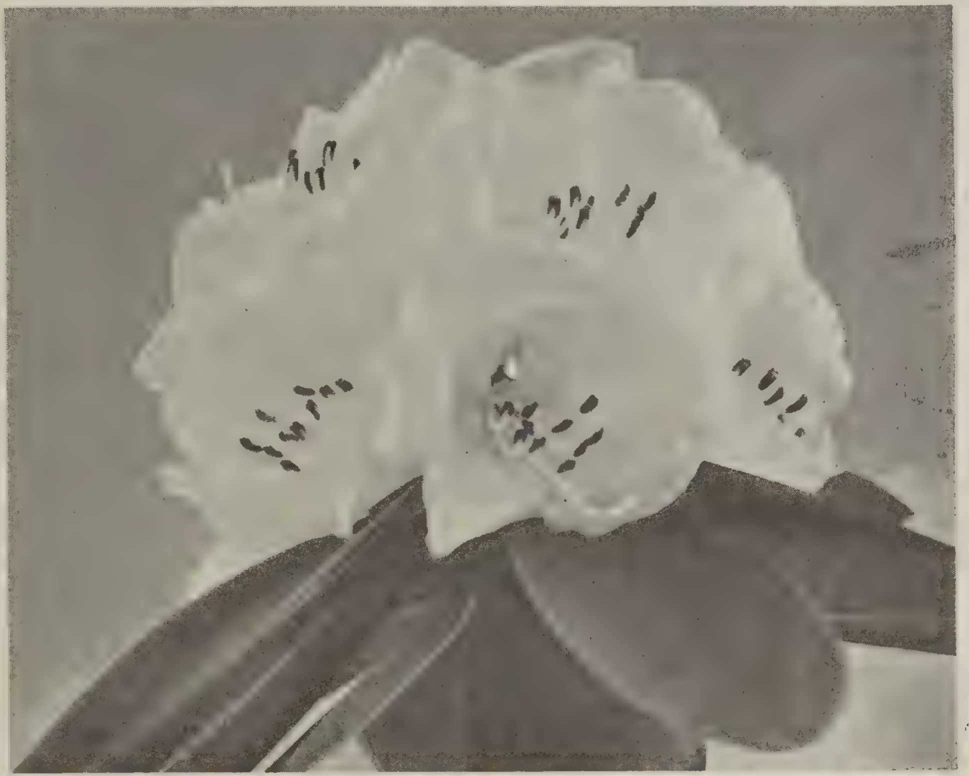


FIG. 67.—RHODODENDRON PRAETERITUM.

THE ROSE GARDEN AT BAGATELLE.

We learn from the Curator that during the past few years the flowering of the Rose trees at Bagatelle, Bois de Boulogne, Paris, has been capricious, and, at the time of the visits of the Jury for the purpose of judging the novelties, distinctly unsatisfactory.

This is probably due to several causes. In the first place, one year the flowering period was delayed by late frosts and subsequent continual rain; then, last year an early flowering season was followed by cold, rainy weather, which seriously checked the development of the plants.

It is also thought, however, that another reason for unsatisfactory growth may be the exhaustion of the soil at Bagatelle; and this year, in order to remove this disadvantage, the beds where the new varieties will be planted and will remain for two seasons have been completely re-made.

It may be of interest to Rose growers, both amateur and professional, if the procedure adopted be described.

At the beginning of the winter, the beds were dug to a depth of three feet, and the old soil carted away; new soil—known as "wheat soil" —rather rich and strong, was then substituted, to which was added a month beforehand "terreau de maraîcher," ground roasted horn, powdered "Thomas" dephosphorated slag, sulphate of potash, and sulphate of magnesia. All these materials were placed in a dry corner, and several times turned; then a small quantity of natural nitrate of potash was added.

It was not possible completely to change the soil contained in the beds where new varieties were planted last year, as they have to remain in their quarters for two seasons. The operation is therefore postponed until next year, but in the meantime the soil has been treated everywhere except just round the roots of the Roses.

The toxins resulting from the cultivation of the Roses in the same place for a considerable time were destroyed by injections of sulphide of carbon into the soil (about 200 g. to the square metre), and three weeks later the ground was turned over once or twice to aërate the soil. The carbon sulphide, while destroying the toxins, destroys also the greater number of the nitrifying bacteria, which, as is well known, are necessary to plant life. In the soil thus purified, therefore, fresh nitrifying bacteria were introduced by means of soil on which Roses had never been grown, or, in some places, in the form of a compost mixed with the soil on the occasion of the second digging.

Further, small quantities of a culture of nitrifying bacteria known as "nitragine" were incorporated with the soil, of which each cubic centimetre contains millions of pure bacteria.

It will be interesting this summer to compare the growth and flowering of the Rose novelties in the beds at Bagatelle, in the new soil, with those of last year in the old soil.

Such thorough treatment of the ground should establish among Rose growers a confidence that their plants sent for trial will receive conditions suitable for their development and flowering.

The Week's Work.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Pruning Roses.—More or less of this work confronts every gardener yearly, and the middle of March is the time to make a beginning, unless the garden be a very cold one, when the work may be delayed for another week. Commence with the hardy hybrid perpetuals, then the hybrid teas, finishing with the tea-scented group the last week in March or the beginning of April—the variation in time being dependent on the forwardness or lateness of the season. A few reliable rules are:—(1) cut down newly-planted bushes to within 2 inches to 4 inches of where they are budded; (2) to obtain quantity of bloom lighter pruning is necessary than when show flowers are desired; (3) strong-growing varieties require less severe pruning than weak ones, immature growths being, however, in both cases pruned back to a ripened part; (4) the shoots of an average Rose bush when pruned may vary from 4 inches to 16 inches long or thereabouts, according to the vigour of the sort, pruning the side shoots in proportion. These brief hints apply to the above-mentioned dwarf Roses only—it being assumed the climbing section was thinned and pruned after flowering last autumn. China Roses and Dwarf Polyanthas that are established scarcely need more than in keeping the plants free at the centres of weakly shoots, but if fresh planted a better foundation will be secured by cutting them well back the first season. Pruning being finished, have the waste wood cleared away, and fork the beds a few inches deep, leaving the top tilth as fine as possible, in order to prevent rapid evaporation of moisture when drying winds prevail or should a period of hot sunshine set in early.

Ivy.—Where this climber is used for clothing walls or for screening buildings, it is well to clip the growths and foliage fairly closely at least once a year, not only to keep the Ivy within bounds, but to prevent an accumulation of dead leaves among the growths. This work may be done now.

The Pampas Grass.—This stately plant is the easier kept in good order by cutting it over annually with the shears. Cut away all last year's foliage that hangs loose and free around the clumps, even if such has not turned brown, but be careful not to injure the growing centres, which are now discernible. Young plants or divisions of old crowns may be planted at the end of March or in April.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

The Orchard House.—The fruits of Cherry and Plum trees that were started early to supply fruits well in advance of those out-of-doors are swelling freely. At this stage steady forcing is very necessary until the final swelling commences, when a higher temperature may be afforded with advantage. On the first signs of green-fly fumigate the house and thoroughly syringe the trees the following morning. Planted-out trees will be benefited by having a mulch placed on the borders; by this means less watering will be required, and the slight amount of ammonia given off by the dung will be beneficial to the trees. Pot trees should be stimulated by applying weak liquid manure at the roots, varied at intervals with soot water and a concentrated fertiliser. Plenty of air should be admitted during the early part of the day when the outside conditions are favourable. Use the syringe freely on bright days when closing the house early in the afternoon, and maintain a night temperature of 55°, with a rise of 10° by day, without sun-heat. All side growths not required for extension should be pinched at the fifth or sixth leaf. Certain varieties of Plums often set more fruits than the tree can develop properly, and, where choice fruits are desired, it is necessary to thin them. The thinning should not be done too drastically until it can definitely be ascertained which fruits are likely to swell satisfactorily. If the house is unheated it is advisable to allow the trees to develop slowly, admitting air freely on every favourable opportunity to prevent the temperature rising too high, and thereby hastening the trees into flower. As the blossoms develop endeavour by every possible means to promote a genial, buoyant atmosphere. Apricots, Cherries and Plums in particular will suffer badly if the atmosphere is kept close and damp. Cherries when in flower should have the pollen distributed daily by means of a soft feather brush. If the trees are planted out, Apples and Pears may be transplanted to fill vacancies right up to the time the buds are ready to burst, provided the operation is carried out carefully. The trees selected should have plenty of fibrous roots, otherwise the operation will be a failure, but with a reserve stock of trees, which have been prepared for emergencies, it will not be difficult to find suitable specimens for the purpose.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

The Herb Border.—The plants in the herb border should be examined when the ground is in a suitable condition, and any that are becoming congested divided and replanted in well-enriched soil. Sow the annual kinds at the same time in drills made about one foot apart. Thin the seedlings before they become drawn. A well-planted herb border is not the least attractive part of a well-ordered kitchen garden.

Tomatos.—If not already potted, autumn sown Tomatos should be placed in their fruiting pots, using a compost consisting of two parts of rough, turfy loam, one part of leaf-mould, and one part manure from an old hotbed, with the addition of wood-ash and coarse sand. Pot firmly and leave a space for top-dressing the roots at a later date. A temperature of 55° to 60° is suitable for the plants, and air should be admitted more or less according to the weather. To ensure the fruits setting, tap the plants lightly each morning to distribute the pollen. Pot on early-sown plants as they require more room, and make another sowing in six-inch pots to provide plants for successional fruiting. Best of All and Sunrise are two good varieties for spring sowing.

Turnips.—Sow a few drills of Turnips on a warm border to follow those sown in frames. Quick-growing varieties, such as Early Milan or Long Forcing, should be selected. Sow the seed thinly in shallow drills, made one foot apart, and thin the seedlings to nine inches apart when they are large enough to handle. Where birds are troublesome it will be necessary to place a fish net on stakes about a foot high over the seed bed until the young plants appear. Dust the rows with old soot during showery weather, and hoe between them to encourage the plants to make quick growth. Other sowings may be made at fortnightly intervals throughout the spring, and there is no better place for sowing than between the rows of Peas and Beans, where the slight shade will be an advantage should the weather prove hot. Snowball and Model White are two excellent varieties for spring and summer sowing.

Potatos.—Early varieties of Potatos such as Midlothian Early and May Queen may be planted on a south border in shallow trenches made two feet apart with the spade. Give the ground a dusting of wood ash. Place the tubers firmly in the ground about fifteen inches apart, and fork the ground over as the planting proceeds, taking care not to knock the shoots off in the process. Keep a watchful eye on the growths as they push through the soil; the shoots will soon appear if the weather proves mild. If there is fear of frost, draw a little soil over the growths with the hoe.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE c MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Ox

Deciduous Orchids.—Calanthes, Thunias, Cyrt podiums, and other deciduous Orchids need a tention as regards repotting. Good fibrous loa should be the chief constituent of the compo which should be of the best, and it is essenti to these heat-loving plants that it be warme before being used. Calanthes of this sectio need repotting when the new growths are few inches long, and the plants about to develo fresh roots. Previous to repotting it is advisab to examine the pseudo-bulbs closely for sca and other insect pests which may infest them Care must be taken whilst cleansing the pseud bulbs not to injure the eyes or young growt at the base, as this may be the means of th growth decaying. The dead roots may be cut o to within an inch or so, to form a support tha will keep the plants firm in the soil until th young roots have grown in the compost. Th pseudo-bulbs may be repotted singly, or thre or four large ones, or even more, may be place together in a large pot. Perfect drainage essential, and the compost should consist of ha turfy loam, from which the earthy particles hav been removed; one-fourth chopped A1 fibre; an one-fourth dry cow manure, with a modera quantity of live Sphagnum-moss, small crock and coarse silver sand. The materials should b well mixed, and allowed to become warm befo being used. In repotting, the compost shou be made moderately firm, allowing sufficie space in the receptacle for a top-dressing at later period, when the plants have becom thoroughly established and are growing rapidl The plants' surroundings should be kept mod rately moist by damping between the pots occ sionally. When the roots have a thorough ho of the compost, and the growths have ma considerable progress, occasional waterings wi liquid manure are beneficial. Care should taken when repotting these plants that the mat rial is neither too wet nor too dry.

Thunia.—When these Orchids have commence to grow, they may be treated in much the sam way as Calanthes as regards compost and oth details, with the exception that they should n be potted too firmly, as their roots are not capab of penetrating a close compost. They enjoy sunny position in the warmest house, close the roof-glass. Water should be applied spa ingly until the flower spikes appear at the ape of the newly-made pseudo-bulbs. If given wat at the roots too soon there is the danger the plant not flowering, hence the necessity keeping them on the dry side until the flow spikes appear.

THE HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISO King's Walden Bury, Hitchin, Hertfordshire.

Fruit Store.—With the advent of warmer da the airing of the fruit room is an all-importa factor in keeping fruit. An inrush of warm a through careless opening of doors or windo will soon have its effect on fruit kept ov a long period. A fruit room should have doub walls with an air chamber intervening, an inlets to the house. These may be closed will. The entrance should have double door the inner door being, in part, of glass. The doors should have at least a 6-foot passage b tween them. It may be desirable to have th Pear room under the same roof, and, if on th side of a hill, this will be an advantage, both rooms may be approached from the grou level. Pears should be stored in the upp room. Plans for fruit rooms should be dra up now in order that building be complete during the coming summer. Where possibl site should be chosen on the north side of belt of trees, this affording a cool position. a good-sized garden, and where fairly larg quantities of fruit are demanded, a house 30 fe by 20 feet would be desirable. With a 7 fe head space, 3 side stages, each 3 feet wide, an 3 central stages, 12 feet by 6 feet, may provided, and, allowing for a packing tab 6 feet by 4 feet, leave ample path space. T ble may accommodate trays of selected fruits. pples packed in litter of whatever material ay be placed under the stage on the ground oor. If carefully graded and free from damage hen packed the latest sorts should keep until pples come in again.

Figs.—Those who are able to grow Fig trees tisfactorily out-of-doors will need to give the ees attention at this date. All thick, long-inted and useless wood should be removed. mple space should be afforded the shoots to low the light and air to reach the tree freely. he principle to be aimed at is to secure firm, ort-jointed wood capable of bearing plenty of uit.

General Remarks.—Afford protection to openg blossoms should frost occur. A slight proction of fish netting will sometimes save a ound crop such as Strawberries. Boards from hich protective material is suspended should put in position on the top of walls in readiess. All arrears of pruning, spraying and plantg should be completed. Watch should be kept r the eggs of the lackey moth, which encircle e younger shoots, on trees left lightly pruned orchard trees. Shoots infested with these eggs ould be cut off and burnt. Trees that have eir upper roots bare of soil, and which are ssibly starved, should have a layer of good am mixed with lime rubble put over the roots.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Clivia.—As Clivias pass out of flower they ould, if necessary, be repotted; if in bad contion the soil should be washed from the roots, d any of the latter that are decayed cut away. large specimens are required the clumps may potted on intact, only dividing them if small ants are needed. These plants require very reful repotting, necessitating shaking and orking the soil very carefully amongst the ots. After repotting they require very careful atering until the roots are well established in e soil. Syringing should be done carefully r a time, or the broad leaves will convey too uch of the water to the soil.

Chrysanthemum frutescens.—The common arguerite and its double variety, Mrs. Sanders, well as the double yellow sort introduced by essrs. Sanders (Fig. 68), are all very useful for e decoration of the greenhouse during the tumn. If cuttings are inserted at this date ey make useful plants for the plant stages. here large specimens are required, plants ved from last year's stock should be potted as required.

Chrysanthemum foeniculaceum.—This plant, ke the former, is a native of the Canaries, d is worth growing, as its finely divided aucous foliage is very pretty. The flowers, though smaller than those of C. frutescens, are oduced very freely. The plant succeeds under milar treatment to that afforded the arguerite.

Begonia gracilis var. grandiflora (syn. B. artiana var. grandiflora).—This Begonia prouces buds on the inflorescences; it is a very etty and distinct species, which should not be nfused with the so-called B. gracilis of Contintal growers, which is really a variety of B. mperflorens. The dry tubers of B. gracilis ould now be started into growth in a warm use in the same way as the ordinary tuberous-oted varieties, and it succeeds under similar eatment, as also does B. fulgens, another autiful species which is worthy of more neral cultivation for greenhouse decoration. he last is easily raised from seed in the same ay as the other tuberous-rooted varieties, but their younger stages the plants require a little ore care to obtain successful results. The brid B. weltonensis is an old favourite which worthy of more extended cultivation, as it ay be had in flower during autumn and early inter. Plants raised from cuttings the previous ar give the best results, although good ecimens may be produced from cuttings serted at this date.

INDOOR PLANTS.

CAMELLIAS.

Camellias are very suitable subjects for the embellishment of the conservatory or greenhouse where less hardy plants might fail under similar conditions and treatment. They may be grown and trained on trellises on back walls, and if the foliage is kept clean they make a pleasing covering, apart from the wealth of flowers usually produced early in the year when other flowers are scarce.

When planted out in borders or grown in large tubs and given ample head room, they soon grow to a large size and fill bare, open spaces. Whatever system of cultivation is adopted, good drainage and careful watering are essential. A mixture of sweet, mellow, fibrous loam, grit, leaf-mould and charcoal suits these plants; some prefer to use a mixture of loam, rough peat and grit.

The pruning and thinning of the plants should be done as soon as the flowers are over; useless inner shoots are best removed entirely and such other shoots as may be necessary to obtain an evenly balanced specimen. Insect pests as a rule prove rather troublesome to Camellias, but may be kept in check by spraying at intervals well under and over the leaves, etc., with XL-All insecticide. The varieties are numerous; a large bush of C. Chandleri elegans growing in the conservatory at Wrotham Park produces an enormous quantity of flowers annually. The variety alba pleno also flowers freely here; this Camellia needs shade in summer, as the foliage soon gets damaged by the direct rays of the sun. *H. Markham, Wrotham Park Gardens, Barnet.*

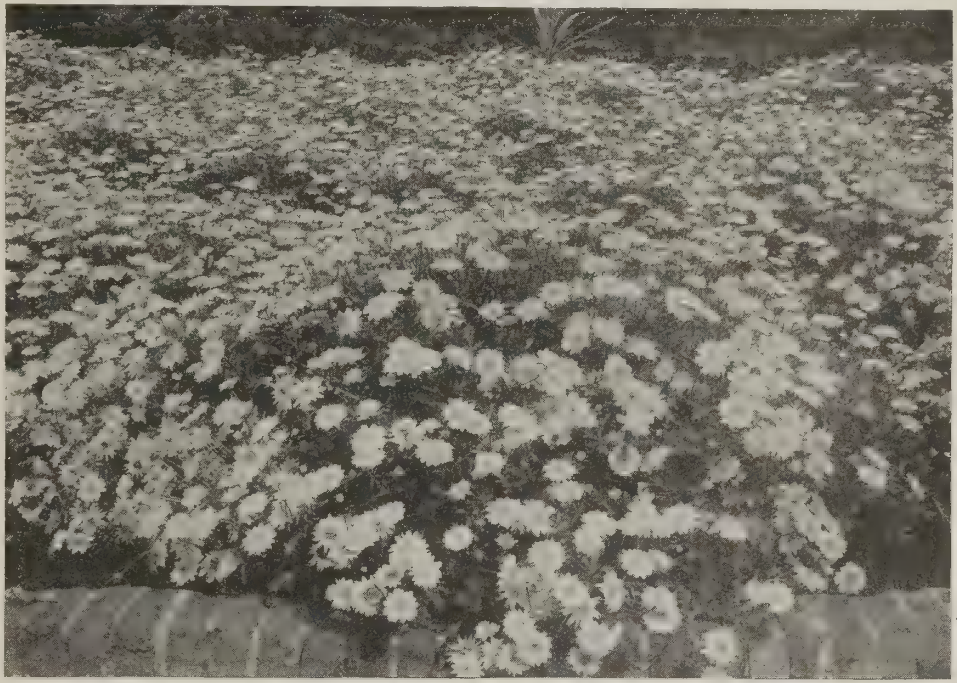


FIG. 68.—BED OF THE DOUBLE, YELLOW-FLOWERED MARGUERITE.

REHMANNIA ANGULATA.

The variety Pink Perfection of Rehmannia angulata is a useful addition to the late winter flowering plants for cool greenhouse decoration. The plant's cultural requirements are not exacting; it is all but hardy, and is best treated as an annual, flowering in ten months from the time of seed sowing.

The flowers are produced singly in the axils of the leaves on the flower scape, which is usually about 3 ft. high. The flowers are tubular, three inches in diameter at the edge of the corolla lobes, and coloured deep pink, the throat being lighter in shade and spotted. Rehmannia angulata is a gross feeder, and for its maximum development requires to be planted in a strong, loamy compost. Plants intended for flowering in late winter will bloom in 7-inch pots; those from a later sowing intended for summer flowering may, with advantage, be grown in larger pots. *Fred W. Jeffery.*

ORCHID NOTES AND GLEANINGS.

POTINARA LOWII.

The multigeneric hybrid containing Brassavola, Cattleya, Laelia and Sophronitis, and named by the raisers, Messrs. Charlesworth and Co., Ltd., in honour of Monsieur Julien Potin, a leading French orchidist, commenced well with the deep violet purple Potinara Juliettae (S.-L.-C. Marathon × B.-C. Ena), which secured a First Class Certificate on February 28, 1922. Messrs. Flory and Black, Slough, followed with Potinara Gratrixiae (S.-L. Gratrixiae × B.-C. Mrs. J. Leemann), and Potinara Royal Purple (B.-L.-C. Gerald × S.-C. Westfieldensis), both good flowers. In Potinara Lowii, now flowering in Messrs. Stuart Low and Co.'s collection, the combination is secured by crossing Lowiara insignis (B.-L. Helen × S. grandiflora), itself a garden genus, with L.-C. Luminosa (C. Dowiana × L. tenebrosa), flowered by Messrs. Low in 1912. In Potinara Lowii the general characters of Lowiara predominate, but the flowers are larger. The lanceolate sepals and petals are bright vermilion with an orange shade; the lip is rose purple with thin lines from the base to the well-expanded front.

MILTONIAS.

Miltonia vexillaria, M. Charlesworthii, M. Hyeana, M. Bleuana, the rare M. Warscewiczii and the distinct M. Schroderiana, with a number of the newer hybrids, are now in full growth, and need plenty of water at the roots.

While in this condition it is advisable to examine the growths occasionally, as some of the young leaves adhere to each other so firmly that it causes them to become crumpled and deformed. When this is observed, the leaves should be liberated with the handle of a budding knife or a thin, smooth piece of wood, a method far better than attempting to separate them with the fingers, there being less likelihood of injuring the tender foliage. At the same time the plants should be examined carefully, as thrips often attack them and soon disfigure and do permanent injury to the plants. Upon the first signs of this pest dip the plants in an insecticide, afterwards laying them on their sides to drain. *B.*

CULTURAL MEMORANDA.

THE PROPAGATION OF HIMALAYAN RHODODENDRONS.

These beautiful hardy Rhododendrons may be propagated from seeds, layers and cuttings, or by grafting and budding. Of these various systems I prefer increasing them by seeds as seedlings have a better constitution and live longer than those propagated by other means, while there is always the possibility of obtaining new and improved varieties. The seed pans or boxes should be about one foot in diameter, and they should be provided with a depth of three inches of drainage material, and the potsherds should be covered with a layer of moss or rough portions of peat, and this in turn covered with about an inch and a half of fine peat, leaf-mould, and sand. This will bring the soil to within half an inch of the top of the receptacle. The former should be pressed fairly firmly and then watered thoroughly by means of a fine rose water can and allowed to settle. When the moisture has drained sufficiently from the soil, the seeds may be sown evenly on the surface and the seed-pan covered with a sheet of glass and kept shaded; another method is to place fresh moss over the surface of the soil to keep it shaded and moist until the seeds germinate. The seed-pans should be placed in a propagating frame having a temperature of about 60° to 65°.

The seeds will germinate in from three to six weeks, and at that stage the covering should be removed gradually and the atmosphere kept moderately dry to prevent the seedlings damping off, which they are very liable to do. The plants should then be accustomed to exposure to the air in an open glass-house, and as soon as they can be handled, pricked out into other pans or boxes containing soil prepared in a similar manner to that for seed sowing. When the seedlings are well established, they may be removed to a cold frame.

The propagation of these Rhododendrons by layering is very simple, but, as all the members of this class of Rhododendron are of slow growth, sufficient roots will not have formed to give the plant an independent existence until more than a year has elapsed. R. barbatum is one of the slowest to root in this way; indeed, I have known cases where the layers have only commenced to root after a period of two years has elapsed, whilst others, including R. Roylei, and many hybrids, take twelve months to root, but even in their cases they are best left for two years before being detached from the parent.

The method of layering is very simple; a portion of the underside of the branch should be removed by means of a sharp knife, and that portion of the shoot pegged close to the soil, having previously placed a little prepared compost containing plenty of sand and peat under the place where the layer will be buried. The shoot should then be covered with more of the fine soil and made very firm in the ground.

Grafting is resorted to when it is desired to increase the stock in a short time, but the method is not a very reliable one for the Sikkim varieties, and in some cases the union is not a success. Rhododendron ponticum is generally employed as a stock, and plants for the purpose may be raised from seed. They are suitable for grafting when three years old, and should be potted in the autumn previous to grafting, and placed in cold frames. The grafting may be done as soon as the sap commences to flow. Saddle and cleft grafting are the best methods, and it is necessary to make perfectly clean cuts on both stock and scion. The grafts should be bound securely with raffia and the place of union covered with clay. The plants should be grown in a warm frame or glass-house, and kept close and well sprayed for a time. As soon as it is seen that the scion is growing actively, the plants may be afforded cooler treatment and finally placed out-of-doors.

Budding is a method of propagation which may be done all through the summer. The method is the same as in budding fruit trees, and the buds may be inserted on the stocks where the latter are growing. *W. A. Cook.*

THE PROPAGATION OF DRACAENAS.

Dracaenas are easily increased at any time by cutting the stems into portions from one to two inches in length, and laying them in a bed of fibre in a warm propagating case. The tops of the plants may also be inserted as cuttings, although the usual method is to cut the stem half-way through, just under the bottom leaves, tie a handful of moss and sand around the stem at this point, and if these are kept moist and the plant kept somewhat dry at the roots, fresh roots will soon grow into the moss, when the top may be cut off and placed in a suitably sized pot. Underground eyes from the bases of the old stems also afford a ready means of increase. *C.*

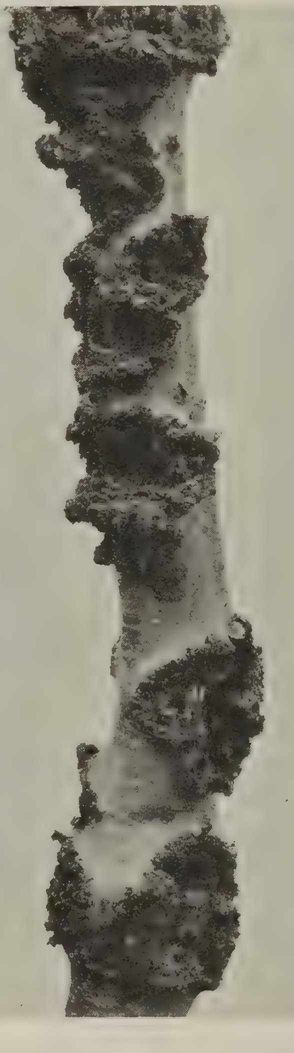


FIG. 69.—CANKER OF ASH; PRESUMABLY OF BACTERIAL ORIGIN.

CANKER OF ASH.

In some districts Canker of the common Ash (Fraxinus excelsior) is fairly common, and, as may be seen from the illustration (Fig. 69), it completely ruins the stems of the trees for commercial purposes. According to Massee (*Diseases of Cultivated Plants and Trees*, Second Edition, 1915, p. 520), "these diseased spots have been shown by Noack to be of bacterial origin. In some instances, at least, the leaves and leaf-stalks appear to be first infected, the bacteria from thence passing into the wood. On the branches small, discoloured, reddish patches of bark first indicate the presence of the disease. The bark eventually cracks at these points, and the canker gradually increases in size. Saplings up to about half a dozen years old seem to be those chiefly attacked, and nothing seems to be known as to preventive measures. *A. D. Richardson, Edinburgh.*

DEEP PLANTING.

One often learns through mistakes, though mistakes are not to be desired. Early in the war period some girls planted a quantity of Potatos at an average depth of seven inches, and though the tubers were in the ground quite three months before top growth appeared—their appearance at all had been almost despaired of—in the end they produced a fine crop. I had read of Potatos being planted so deeply and recommended to be so planted, but it was not until the crop was lifted that I learned how this "mistake" of the girls was correct. I had always planted Golden Wonder quite five inches deep, and generally for late varieties deep planting may be worth consideration. For early crops not so.

In the same way some Narcissi do better when deeply planted, *e.g.*, Double White, King Alfred and the double varieties of incomparabilis. In this case it would appear that deep planting ensures a better supply of moisture to the roots. It need not be said that if the ground has been merely dug, and not trenched, deep planting cannot be any advantage.

Many years ago the late Mr. Garret, of Whittinghame, assured me that by planting Gladioli to a depth of eight inches no disease would attack the corms. That was at a period when Gandavensis crosses alone were grown, and it was impossible to grow Gladioli for more than a year or two without replenishing the stock because of disease. Now a diseased corm is seldom seen where the stock is of hybrid origin, and therefore it may be concluded deep planting would be valueless. Yet it may not be so, for last year about 600 plants set seven inches deep proved in every way superior to those set at the usual depth. The reason is probably similar to that advanced for Narcissi—a more generous and equable supply of earth moisture to the roots. *R. P. Brotherston, Tyninghame Gardens, Prestonkirk.*

THE JARDIN DES PLANTES AT MONTPELLIER.

The Jardin des Plantes of the University of Montpellier was founded under Henri IV. There still remain from the time of the first Conservateur, Richer de Belleval, several Phillyreas and the "debris" of a Cercis Siliquastrum, which was 8 metres 85 cm. in circumference when de Candolle measured it in 1832. Among other fine trees I noted Maclura aurantiaca, a female tree planted by De Candolle in 1815 and bearing its large, yellow Orange-like fruits; Abies Pinsapo, planted shortly after its introduction in 1848; Cupressus guadalupensis, a beautiful, feathery tree, some 35 feet high; and Cedrella sinensis, planted by the Abbé David in 1880. There is also the fine and famous Ginkgo biloba which was sent from England by Banks to Couan, then conservateur of the garden, in 1785; in 1830 Demetta grafted the female form on to the male specimen, and the tree fruited in 1835.

The work of the garden is seriously affected by climatic conditions, the water being hard and the soil limestone. No rain has fallen for six months!

The glasshouses contain a large collection of Palms, notably Madagascan species, Euphorbias, Echiums, Polygalas, Strelitzias, Cereopegias and similar plants. Phalaenopsis and Vandas do well, but other Orchids dislike the hard water. Out-of-doors the plants are still grown as arranged by de Candolle.

The collection of dried plants is one of the largest in existence, and many of the specimens date back far into the eighteenth century. Monsieur Daveau, the conservateur, is over seventy years of age but very active, and he delights to show the garden to visitors. He is the author of an important monograph of the genus Cistus.

The public gardens of Montpellier are chiefly remarkable for magnificent specimens of Magnolia grandiflora. *William Lawrence, March 5*

NOTES FROM IRELAND.

The New Year has not been niggardly in its rainfall, for although January, as registered at Glasnevin Gardens, gave but a total of 1.88 inch, February followed with 5.21 inches, the product of twenty-seven days on which rain was recorded.

Snow has not been seen the winter through in the Dublin district, save for an occasional but brief white capping of the distant mountain range. Glasnevin, "the gem of European botanic gardens," under Mr. J. W. Besant's harge, well maintains its interest, and is in excellent order and high keeping. The charming old Queen Anne residence, so long occupied by Sir Frederick and Lady Moore, closed since heir retirement, wears rather a mournful air in its drawn blinds, but near it, as March omes in, Daffodils on the grass, in such kinds as Ard Righ, Henry Irving, obvallaris and princeps, give their gracious gleam of gold. Surely the dainty little Narcissus cyclamineus, as seen in the rock garden, is the darling of the ribe.

So far as Daffodils go, in their timing, things ook propitious for the R.H.S. of Ireland spring how, fixed for April 5 and 6.

A wide spreading plant of Pyracantha crenulata yunnanense, horizontally trained on an office wall immediately outside the Glasnevin Gardens ntrance, with its heavy crop of glistening rimson fruit, is the cynosure of all eyes. Away up in the charming grounds among the reat and far-spreading collection of Coniferous ubjects a golden-hued Scots Pine, P. sylvestris urea, is most remarkable.

Effects of the open, snowless winter are very evident on the south side of the city, and on o Bray, where one comes under the witchery of "faire Wicklow." Prunus Pissardii seems o have been plentifully planted in Irish gardens, nd by mid-February substantial bushes, some of almost timber-tree dimensions, were in profuse lower, a sequel to which was found in our city restaurants, where contributions had gone via the market, and in one instance where a whole series of tiny tables had central bouquets associated with the coppery foliage of Mahonia aquifolium, the effect, if accidental, was happy. That beautiful Chilian evergreen, Azara microphylla, in various places, notably in a roadkirting shrubbery, with its myriads of minute blossoms, was rather sensed in grateful perfume han seen.

From Kilmacurragh, away in the wilds of Wicklow, came a January note of Rhododendrons, notably nobleanum, with its two varieties, n gorgeous beauty, and by this time Eucalyptus pulverulenta is probably displaying its unique loral charms, with the glorious Magnolia Campbelli close up. Citywards, but still under what has been called a Mediterranean climate, on he steep ascent of Killiney Bay, where Mr. R. C. McM. Smyth has his residence on a rock, and his garden, too, what one may term he humbler herbs of a spring flora, having to bear the penalty of wind exposure, make a brave display. Of these he sends a lengthy list, ncluding various Saxifragas, Hepaticas, Triteleia uniflora, white Onosma, and a certain miniature Rose—Lawrenceana—which he has had for ten years, and is but 10 inches high, which, he tates, "is, as usual, in bloom."

Considerable interest is being taken locally n the new Irish seedling Potato, Mahon's Fingallian, which, having been under control culture by Messrs. Wm. Cotter, Ltd., of the Corporation Markets, Dublin, for two years, is now being distributed by the firm. As seen in company with other standard varieties, this seedling is emarkable for retaining its foliage and growing conditions quite late in the season when all others have died down. Mahon's Fingallian has proved ultra prolific, and so immune from he dreaded late blight—which, by the way, was very little in evidence last season, whether the plants were sprayed or not—as to make the heavy rops literally blightless. So much has this obsessed growers that more than one who went o the trouble and expense of spraying declare "No more spraying for me." *K., Dublin.*

USK PRIORY.

To gardeners, Usk Priory is usually associated with Orchids, for Mr. Windsor Rickards has shown these plants frequently at the Royal Horticultural Society's meetings and won many awards for especially fine types and varieties from his collection. We do not propose, however, to describe the Orchids at Usk Priory, beyond stating that the Orchid houses are models of what such houses should be, and that the cultivation is of the very best, every specimen being in the highest perfection of health, and the pots, staging, and glass-houses so scrupulously clean and tidy that one almost wonders whether the plants were ever even watered.

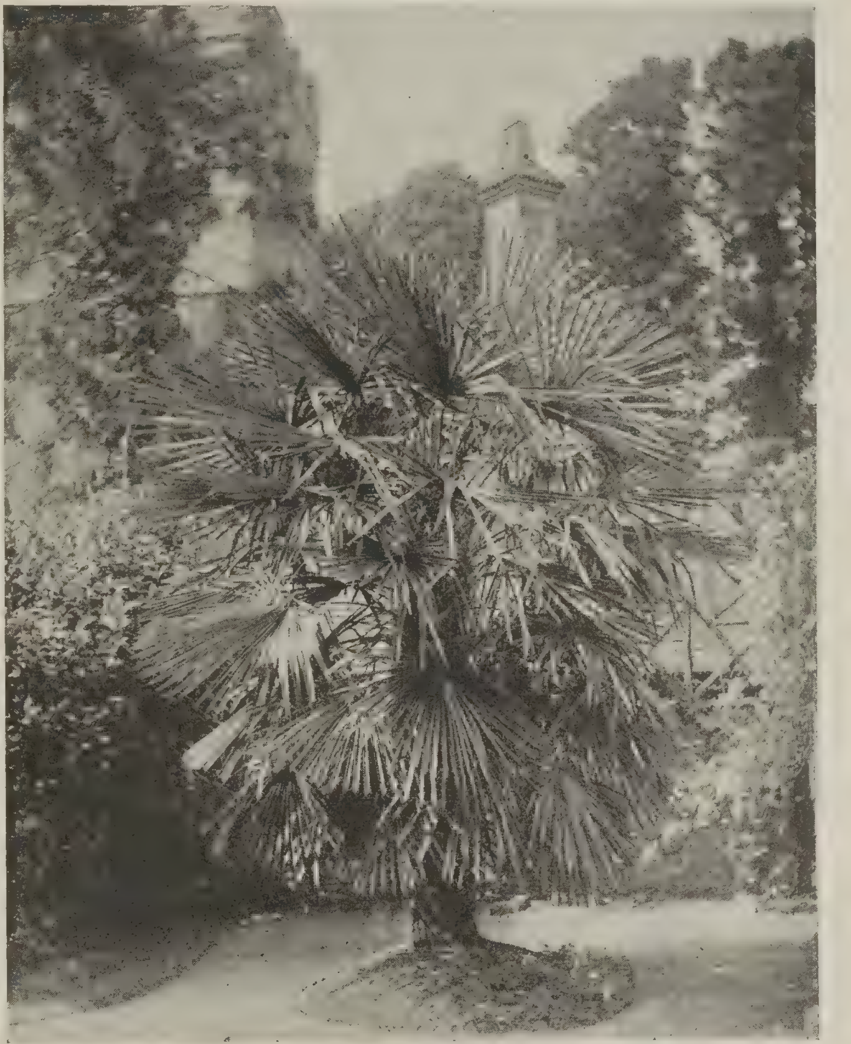


FIG 70.—TRACHYCARPUS EXCELSA AT USK PRIORY, MONMOUTHSHIRE.

But this degree of orderliness was only in keeping with the rest of the place, for we have no hesitation in saying it was one of the most tidy, as well as one of the most pleasing small gardens, we have ever visited.

Like all the old monastic residences, Usk Priory is situated in a spot of great natural beauty. The Priory itself has existed over eight centuries, and is in an unobtrusive corner near the south side of the Church of St. Mary's, the church following the erection of a castle by the Normans, the church in turn being followed by the foundation of the monastery. The Priory at Usk was of the Benedictine order and in its early days was occupied by none but virgins of noble birth. Since Mr. Rickards acquired the building he has restored and beautified it, and those interested in old institutions of this kind will find a wealth of beauty in the fireplaces, panelling, roofts, etc., apart from the many treasures with which the present owner has adorned it.

On entering the gardens, it is at once apparent that the owner is a great lover of nature and a keen gardener, for it is full of beautiful shrubs and trees, and choice flowering plants, many of which are seldom met with in the open in this country, for the climate is so favourable that Mr. Rickards is enabled to grow and flower a number of species which are only semi-hardy. The specimen of Trachycarpus excelsa (Fig. 70) is one of the finest examples of this Palm in the country, and, as will be seen on reference to the illustration, it is furnished with leaves almost to the ground level. Such interesting plants as Daphniphyllum glaucescens, Carpenteria californica, Plagianthus Lyallii, Arum Dracunculus, and Viburnum Carlesii seemed perfectly at home, for they grow and flower with freedom. Large patches of Cistus seem to revel in the congenial conditions of these gardens, and other plants of special interest noted were a magnificent specimen of Daphne Cneorum, fine old trees of Arbutus Unedo, handsome specimens of Cedrus atlantica glauca, Picea pungens glauca, Thuja Lobbii, Sequoia gigantea (Wellingtonia), the dwarf Juniperus communis nana, Lonicera Ledebouri, Liquidamber styraciflua, Spiraea ariaefolia, and Forsythias in variety.

The herbaceous borders are extensive and planted with the choicest of hardy perennial flowers, whilst in other parts are flower beds, Roses and a delightful little rockery, the last approached by a flagstone path in which Oxalis, Thymus, Dianthus, Campanula and similar low-growing subjects are planted in the crevices. No prettier gardens than those of Usk Priory could be imagined, and the care and skill with which they are maintained is a credit both to the owner and his capable gardener, Mr. Luff.

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HORTICULTURAL TRADERS AND TAXATION.

NEARLY nine years have elapsed since the British Empire was suddenly called upon to enter on a struggle which threatened its very existence. Its citizens have not repented of their determination to defend themselves at all costs from a ruthless invader, who boasted of his determination to occupy this country, and to exact the uttermost farthing in the event of his success, and tax-payers have shown no signs of seeking to avoid payment of their fair share of the financial cost involved. This is not to say, however, that they are disposed to accept without demur any individual apportionment of the total burden which is not reasonably and equitably imposed.

At the best, the position of the tax-payer is difficult enough at the present time, Parliament in its wisdom having decided that in order to raise the necessary funds he must be prepared to give up one-fourth of his income. In the case of business men, this practically amounts to their taking the Tax Collector into partnership with them on the basis that he brings in no share of working capital, that he takes no active part in the earning of the profits of the business and that he bears no part of any annual loss that may be sustained; on the other hand, this official "junior partner" is entitled to a fourth share of the annual profits if the trader is fortunate enough to have made any.

In addition to this, there is, in the case of a limited company, the additional duty on profits known as the Corporation Tax, while until recently there was a further tax of 80 per cent., subsequently reduced to 60 per cent., known as "Excess Profits Duty," on any profits (made by either private firms or limited companies) in excess of those made before 1914, notwithstanding the diminished purchasing value of money since that time.

Seeing that so heavy a burden has been shouldered by the commercial community, it is clearly of the first importance that the individual trader should not be compelled to bear more than his fair share of the revenue to be raised. It is, therefore, somewhat startling to find that in the case of nurserymen and seedsmen the Inland Revenue Authorities are taking up the attitude that, in cases where the seed department shows a profit and the nursery department shows a loss, the trader must not set off one against the other, but must, during the time that the Excess Profits Duty was in force, pay such duty on the profits of the seed department, without taking into consideration the loss made by the nursery department. In other words, in assessing the tax, the question of whether or not the business has made a loss on its entire trading is not to be considered; but the Excess Profits Duty must be paid on the profit made on a single department, the losses on other departments being ignored.

Presumably the reason for putting forward this astonishing demand is that in a case decided not long ago the Courts held that a firm of manufacturing chemists was entitled to claim exemption from Excess Profits Duty in respect of that department of its business which consisted of the growing of herbs for distillation purposes, and need only pay duty on that portion of the profits which was attributable to the manufacturing part of the business. The reason for this exemption was that "husbandry" was exempted by the Finance Act, 1915, from Excess Profits Duty, and it was held that the growing of herbs for distillation purposes came within the definition in question.

It is difficult to see why the growing of vegetable seeds, for instance, is not an equally meritorious branch of "husbandry," and why the growing of seeds of any kind does not come within the definition in question. This contention is under serious consideration by the trade at the present time, and more may be heard of the matter hereafter. Quite apart, however, from any technicality of this kind, there remains the general question of whether the Government, by its agents, can claim to divide a single business into two parts, and seek to recover three-fifths of the nominally increased profits of one department, while wholly ignoring the loss on another department.

Surprising as it may seem, this is not the first occasion on which the authorities have sought to take up so illogical an attitude. Some fourteen years ago the Government of that day listened to the voice of the theorist and made its ill-starred experiment in raising revenue by what was known as the "Increment Value Duty" on land. As soon as this duty was imposed it was found that house builders were placed in the perfectly hopeless position of being liable to pay the Government a large proportion of any profits they might make in developing an estate in one neighbourhood, while, on the other hand, they were liable to bear the whole burden if a loss was made in developing at the same time another estate in a different neighbourhood. The outcry was so great that remedial legislation had to be passed in order to minimise the shortage of houses, which must be the inevitable result of such unfair and ill-considered taxation.

The present position of nurserymen and seedsmen is hardly less unfair, if the authorities are right in their construction of the Act of 1915. Such a result can scarcely have been contemplated by Parliament when the Act was framed, and it would certainly seem that in making such claims upon horticulturists the Government are acting contrary not only to the intentions of Parliament, but also to the spirit of the Act.
H. M. V.

EARLY BOTANIC PAINTERS.*

No. 3.—Jacques Le Moyne de Morgues.

The celebrated Erasmus, who died in 1536, makes reference in his *Colloquies* to the pleasure to be derived from comparing real with painted flowers, and adds that the painting holds fresh and green all the winter, when the flowers are dead and withered. Undoubtedly throughout the sixteenth century a considerable amount of botanic painting must have been done. Some of the herbal-writers employed painters to furnish the designs from which their woodcut illustrations were produced; plant-paintings are known to have passed between several early botanists, and many gardening enthusiasts relied on painters to record their most cherished flowers. One of the flower-loving Este princes, Bosso d'Este, paid Angiolo da Siena the sum of 800 lire, for which he had to present every Easter a painted flower; and Louise M. Richter, in a recent article in *The Connoisseur* (No. 247, 1922), reproduced a very fine study of an Iris by Jacopo Bellini (died c. 1471), which may have served a similar purpose. Yet, in spite of all this, with few exceptions, both the names of the painters and the paintings themselves would seem to have passed into oblivion. We have record of "le peintre de fleurs Baptiste Pelerin," who was the friend of Jacques Gohory, founder of a Paris herb-garden in 1571, but his paintings appear to have perished. It is not until well on into the seventeenth century that surviving painted Florilegia are to be found in any numbers; and the earliest preserved in the library of the Jardin des Plantes, Paris, is date 1631. The collection of plant-paintings b Jacques Le Moyne de Morgues, now in the Vi toria and Albert Museum, is, therefore, of considerable importance and interest, owing to it early date and for the associations connecte with its painter, who passed the last sixte years of his life in Blackfriars, London. A shor account of this collection appeared in *Th Gardeners' Chronicle* of January 28, 1922, an my present purpose is to put on record som additional information, including a list of th paintings.

The story of Le Moyne's life, as far as it i known, is redolent of the hazardous times i which he lived. Born at Dieppe at some unknown date (but perhaps about 1530), he cam of a Calvinistic branch of a high family in tha town. Of his early years, or of his training a an artist, there is at present no record. In 156 he was selected to accompany Laudonnière' Florida Expedition, which was organised t relieve an earlier expedition to found a Huguen colony in the New World, his duties being thos of cartographer and artist. His own account o this ill-fated expedition, published posthumousl by Théodore De Bry in the *Grands Voyage* 1591* gives some interesting details. He tells u that the expedition was accompanied by man young noblemen "with splendid outfits," an a picked body of veteran soldiers. A certai degree of success at first attended the enterpris A strong-point, Fort Carolina, at the mouth o what is now St. John's River, in norther Florida, was established, and friendly relatio with the natives entered upon. Soon, howeve the disillusion of some of the young noblem (who had gone out filled with ideas of sel aggrandisement), and the shortage of food supplies, brought about dissensions and even mutin Laudonnière himself for a time being held prisoner. Later, the English commande Hawkins, returning home from a long voyag came up to the fort, and supplied them wit flour, beans and pease; further, for a moderat price, sold them one of his ships, receiving som brass cannon as part payment in advance. However, where the Englishman had proved a frien in need, the Spaniards, who had hitherto ignore that part of the coast, and, moreover, were the at peace with France, came in numbers an treacherously surprised Fort Carolina at nigh and massacred the greater part of the garriso Le Moyne gives a graphic account of his ow escape, and of how, after several days of miserable tramping through the swamps, the remnan of the expedition, including Laudonnière an himself, was able to reach the ship Hawki had left, and, "ill-manned and ill-provisioned, put to sea, in due course reaching "that a of the sea bordering on England which is calle St. George's Channel." He returned to France and, later, at Moulins, was commanded to la before the young King Charles IX. an enlarge map of the new country and a certain numbe of his paintings of the natives, their dwellings etc. (One of the original paintings has survived and shows clearly how faithfully the engraver De Bry, copied them). In 1572, he was surprised by the Massacre of St. Bartholomew' Day, and had just time to gather his paper together and escape to London, where Si Walter Raleigh, always a friend to th Huguenots, took him into his service, and ha him safely lodged in the Blackfriars. It is o record that he was of the greatest assistanc to Raleigh; and he has been called one o Raleigh's Magi. Thus, after narrowly escapin violent death, both in the New and Old Worlds he spent the remainder of his days in London working as an artist, and the friend of learne and cultured people, such as Thomas Harriot Sir Philip Sidney, and Hakluyt. He died i 1588, leaving a widow and at least one child Such is the brief outline of what is known o this interesting Huguenot artist, whose accoun of the Laudonnière expedition (which, by th way, was translated into Latin by the botanis Clusius), so far as it reveals himself, shows him to be an honest, cultivated, and godly man.

Le Moyne's plant-paintings are undated, bu the paper on which they are executed bears known water-mark appearing on papers made at Paris and Arras in 1568. They were, there ore, done at some time subsequent to his return from Florida, but whether prior or subsequent to the fatal year 1572 is uncertain. There are some points of similarity of design in about a dozen of the paintings, and the woodcuts in his *La Clef des Champs*, Blackfriars, 1586, though not very marked, as the latter are decorative outlines only, and the former finished naturalistic studies. It was, no doubt, these plant paintings, and possibly other similar ones now lost, that led to the publication of the book mentioned, which was dedicated to Lady Mary Sidney; but it is still an open question whether the paintings were done in France or in England. So far as I am aware, the flowers painted offer no clue.

There is an individuality, an honesty of vision, and an entire freedom from superficiality about Le Moyne's plant-paintings. His technique consisted of a general outlining with the lead, the straightforward painting in in water-colour of the appropriate colours, his colouring being very true to nature; and when dry these washes were carefully worked up in detail, body-colour being used where necessary. The hairs of plants were usually done in body-colour; and he showed much skill in rendering the surfaces of fruits by a carefully-managed coat of body-colour. This admirably-painted sixteenth century Florilegium faithfully carried on the tradition of painting plants "in miniature" (*i.e.*, in detail). It is evident also that it is by a master-hand. The splendid, detailed illustrations in the *Grands Voyages* are sufficient evidence of Le Moyne's high artistic qualities, and it takes an artist of high merit to paint flowers really well.

In the following list of the paintings, the numbers refer to those written in the top corners of the pages, and contemporary inscriptions are added in parentheses:—1, Narcissus pseudo-Narcissus ("Demorogues," or perhaps "Demorgues"); 2, Viola odorata; 3, Bellis perennis, red garden var.; 4, Rosa sp.; 5, Vinca major ("Peruanche"); 6, Paeonia officinalis ("Piuoine"); 7, Iris germanica; 8, Convallaria majalis; 9, Dianthus plumarius; 10, D. Caryophyllus and Tagetes erecta; 11, Calendula officinalis; 12, Rosa canina; 13, Malva sylvestris; 14, Galanthus nivalis; 15, Anchusa officinalis; 16, Viola tricolor; 17, Papaver somniferum; 18, Vicia sativa; 19, Cyclamen europaeum; 20, Borago officinalis ("Bourrochez"); 21, Aquilegia vulgaris, double var. ("Ancolye"); 22, Matthiola incana ("Girofflee"); 23, Centaurea Cyanus ("Baptilessere, Cornille"); 24, Agrostemma Githago ("Nigella. Nielle"); 25, Digitalis purpurea ("Digitalis. Gantelet"); 26, Arum Dracunculus ("Serpentaria"); 27, Papaver Rhoeas ("Papauer silvestris. Coquelicoc"); 28 Delphinium Ajacis ("Pied Dulcuette"—? a corrupt form of the name, Pied d'alouette); 29, Setaria italica ("Millet"); 30, Trapa natans ("Tribulus. Cornuelles") [careful study of the whole plant, with its peculiar fruit; said to have been introduced into English gardens by Solander in 1781 (*Hort. Kew.* ed. I., i., 164), but was known to Lyte, also to Johnson, who in the 2nd ed. of Gerard's *Herbal*, 1633, gives Durford Abbey and "about London and elsewhere" as localities]; 31, Amygdalus communis; 32, A. Persica; 33-34, Prunus Cerasus, white and red vars.; 35, P. domestica, var., the Damson; 36, ? Cynara Scolymus; 37, Mespilus germanica; 38, Ficus Carica [a ripe Fig, delicately coloured, is shown separately]; 39, Citrus Limonum and C. Aurantium; 40, Morus nigra; 41, Pyrus communis, var.; 42, Vitis vinifera, both white and black vars.; 43, Cydonia vulgaris; 44, Pyrus Malus, var.; 45, Punica Granatum; 46, Pyrus domestica, var., the Greengage; 47, Cucumis Melo; 48, C. sativus; 49, Fragaria vesca; 50, Juglans regia; 51, Corylus Avellana; 52, Nigella damascena; 53, Melampyrum arvense, Purple Cow-Wheat; 54, Delphinium Staphisagria, Palmated Larkspur or Stavesacre; 55, Lavendula Spica; 56, Ruta graveolens ("Rue"); 57, Matricaria Chamomilla ("Camomille"); 58, Trifolium pratense ("Trifolium, Triollet, Treffle"); 59, Scabiosa arvensis.

In conclusion, it is necessary to state that the painting reproduced here has been selected from the available photographs, not as representative of the more delicate studies, but as the one most suitable for a half-tone illustration (Fig. 71). The size of the original is about $10\frac{3}{4}$ inches by $7\frac{1}{2}$ inches. It is reproduced by kind permission of the Director of the Victoria and Albert Museum. *S. Savage.*

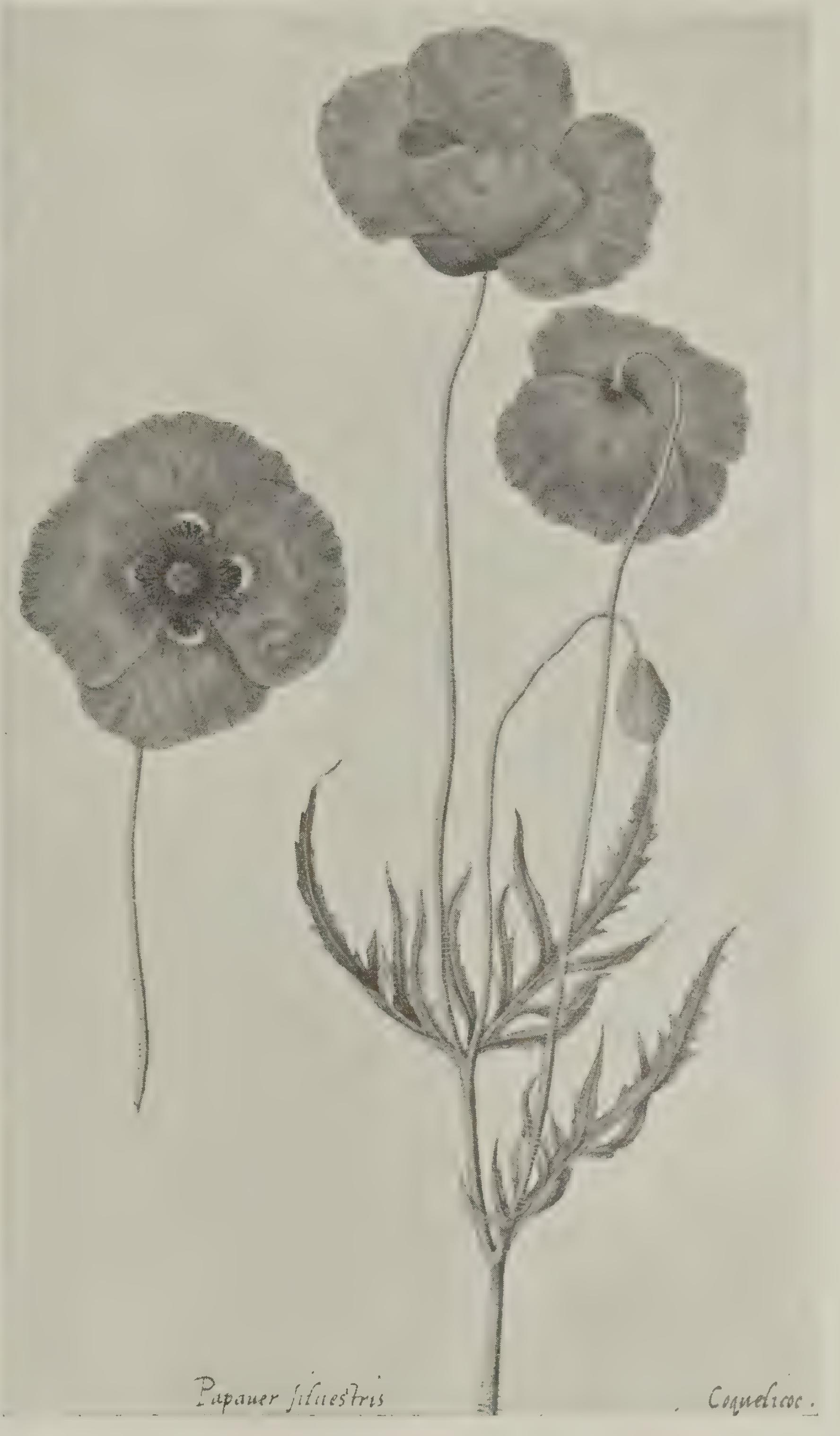

FIG. 71.—PAPAVER SILVESTRIS, FROM A PAINTING BY JACQUES LE MOYNE DE MORGUES.

THE SHIRLEY POPPY.

It may be appropriate at this date to place on record the late Rev. W. Wilks' own account of the raising of the Shirley Poppy, which is as follows:—"In 1880 I noticed in a waste corner of my garden abutting on the fields, a patch of the common wild Poppy, one solitary flower of which had a very narrow white edging to the petals. This one flower I marked and saved the seed of it alone. Next year, out of perhaps 200 plants, I had four or five on which all the flowers were white-edged. The best of these were marked and the seed saved, and so on for several years, the flowers all the while getting a larger infusion of white to tone down the red until they arrived at quite a pale pink, and I obtained one plant that was absolutely pure white in the petals. I then set myself to change the black central portions of the flowers, the anthers, stigmatic surface, and pollen, from black to yellow or white, and succeeded at last in obtaining a strain with petals varying from the brightest scarlet to pure white with all shades of pink in between, and with all possible varieties of flakes and edged flowers, and having golden or white stamens, anthers, stigmatic surface, and pollen, and a white base to each petal."

VEGETABLE GARDEN.

CARROTS.

The Carrot is one of the most valuable root vegetables, and in demand over the whole of the year.

Carrots are of three types, Shorthorn, Intermediate and Long, and all are useful for different purposes. One of the most important factors in the successful cultivation of Carrots is the type of soil, which should be moderately light in texture and deep. A liberal supply of plant food should be present in the soil, preferably as a result of high manuring for some previous crop. Ground which has been cropped previously with Celery, Peas or Beans is very suitable for growing Carrots. The practice of adding manure to the land immediately before sowing the seed is to be condemned, because it induces the roots to fork and causes them to become rusty.

The seed may be sown thinly in drills made one and a half inch deep, early in March, or as the ground is in suitable condition for working. The distance apart at which to sow depends on the section. The rows for Shorthorn varieties may be spaced nine inches asunder; those for the Intermediate type fifteen inches, whilst Long Carrots need eighteen inches between the drills.

As soon as the seedlings can be handled they should be thinned, and it may be necessary to thin on a second occasion, when, if the plants are of a sufficient size, they may be utilised for eating, as small Carrots are very delicious.

The three sections enumerated require thinning to six inches, one foot and fifteen inches apart respectively. When the plants are half grown it is beneficial to stimulate them by the application of sulphate of potash every week, at the rate of one ounce per lineal yard of drill. The roots will mature in autumn, when they should be lifted from the ground and stored in sand in a dry, frost-proof place.

The Carrot Fly is a great pest of this crop. It is essential that growers should realise the utter impossibility of attempting to cure a badly infested plot of Carrots. The pest is then too deep-seated to yield to remedial measures. The only hope of immunity lies in the application of some preventive. For this purpose I know of nothing superior to MacDougall's Sheep Wash. One ounce of the compound should be added to one gallon of water and be applied to the crop every fortnight from the seedling stage, until the period of danger is passed. Useful varieties of Carrots in each section are Early Horn, James's Intermediate and Altrincham (Long). *Geo. H. Copley, N.D.H.*

FRUIT REGISTER.

MELON DICKSON'S ACQUISITION

This variety of Melon has a sturdy, robust habit of growth and sets plenty of fruits. The individual Melons grow to a good size, are beautifully netted, have a thin rind and scarlet flesh, which is deep and luscious. I consider it one of the very best flavoured Melons I have ever grown. Exquisite, a green-fleshed variety, I grew for many years and considered it excellent in every respect, while Hero of Lockinge I consider one of the best of the white-fleshed type.

To obtain the best results with Melons the plants should not be crowded, nor cropped too heavily.

The soil best suitable for the plants is a mellow loam mixed with a little old mortar; if the loam is of somewhat poor quality, a moderate amount of well-decayed manure will greatly assist the plants in every respect. Melons need a rather firm rooting medium, therefore the compost should be made firm, more or less, according to the nature of the soil. Plenty of sunshine is needed to ripen the fruits and develop the best flavour. *H. Markham, Wrotham Park Gardens, Barnet.*

MARKET FRUIT GARDEN.

February was a very trying month for fruit growers in the south of England. The weather was so mild that vegetation became unseasonably forward; yet, at the same time, work was continually hindered by rain. We have not experienced such a wet February in my district since 1916, the total rainfall amounting to 4.18 in. There were only six days entirely without rain. However, there is compensation in the thought that fruit trees and bushes will probably benefit from the moisture. Only now, for the first time since the drought of 1921, has the ground become thoroughly saturated, as shown by the filling of wells and ponds and the running of field drains. There is no doubt that a good store of water in the soil during the winter is a great help to fruit trees.

This is a forward season, and it seems all the more so in contrast with the late spring of last year. At the end of February some varieties of Plums and Pears were just breaking into the closed cluster stage, and the leaf-curling Plum aphis had already started to breed. However, according to my records, it does not appear to be an earlier spring than that of 1921, and not so forward as that of 1920. It is early enough, though, to cause anxiety as to the fate of the fruit bloom, which promises to make a good show on Apples, Plums and Pears in my orchards

Winter Spraying.

February is the best month for winter spraying in a forward season, but rain and wind allowed hardly any opportunity for the work in the past month. Now the buds of Plums are really too forward. I am using nothing more drastic than copper sulphate this year, but even that scorches slightly the ends of the fruit buds. However, I have decided that this scorching is not enough to matter seriously, and I shall go on with the spraying, which is intended to prevent brown rot, and particularly that destructive form of it known as blossom wilt. The later the spraying, of course, the better the prospect of preventing disease; but there is certainly a risk of injury to the buds if it is delayed too long. Apples can safely be sprayed in March.

A Home-Made Spreader.

For the first time I have used a casein spreader in the wash, and there is no doubt that it does add greatly to its wetting and spreading powers. A plain solution of copper sulphate does not wet well where the bark is at all mossy, but tends to run into drops. The addition of a spreader overcomes this. It has also enabled me to add nicotine to kill leaf-curling Plum aphis at the same time.

The casein spreaders on the market are, for the most part, calcium caseinate, a mixture of casein and slaked lime. As the lime would react with copper sulphate I could not use one of these ready-made spreaders, so I had to find some other solvent for the casein, which cannot be dissolved in water by itself. There are several of these solvents, but borax was chosen as probably least likely to react on copper sulphate. The result is quite satisfactory; and I shall continue to make my own spreader for use with all washes throughout the season

The recipe is as follows: Finely powdered casein 20 oz.; borax, 3 oz.; water, to 2½ gallons. Mix the casein with about four pints of water, added gradually and well stirred. Make a separate solution of the borax in about a pint of water, and add to the casein. The result is a rather stiff cream. Heat gently and stir till the mixture thins down and all the casein dissolves, making a smooth solution. This is soon done, as the casein dissolves easily at 110° to 120°. Make up to 2½ gallons with water, and use 2 pints per 100 gallons of wash. It is important to dilute the spreader, say, in a pail of water, before adding it to a copper sulphate solution, or it will curdle.

I expect much improved results in spraying this season, especially with Bordeaux mixture and arsenate of lead, from the addition of the spreader. The cost of materials is only abou 2d. per 100 gallons of wash.

Stored Apples.

The market for stored Apples did not sho any sign of improvement until quite the en of February. Bramley's Seedling then made 1s a bushel more than they were making in th autumn; not enough to compensate for the labou and waste. I had to sell the Bramley's Seedlin from my fruit room, which has an earth floo and is dark, because the fruits were beginning t go spotty. Newton Wonder is still keeping well

A few years ago, in a leading article in thi journal, the question was raised whether well coloured Apples kept better than green ones o the same variety. I started an experiment a the time to test this, but it got upset. Thi year, however, it is very obvious that th coloured Bramley's Seedling have kept best Large, green Apples have been the first to sho rot spots. I have often noticed that the smalle specimens keep better than big ones; and would give preference to small or moderate sized, highly coloured Apples from trees o grass, which are always firmer in texture tha the larger fruit from trees on cultivated ground However, I am not enthusiastic about storin from a commercial point of view. Growers a often censured because they do not keep a l of Apples through the winter; but I believe that taking one year with another, they are mone in pocket if they clear out their stock in th autumn.

Apples in Clamps.

I have still some Bramley's Seedling in a bi clamp, which was opened at the end of February. They were clamped just like Potatos heaped on short grass, and covered with layer of straw and then soil. They have certainly kept quite plump and in fresher conditio than those in the fruit room. There are som rotten ones, but very few of the rest hav gone spotty. I am bound to admit that thes Apples, clamped just as they came from th trees, have kept better than the carefully selecte fruit put into the fruit room and given ever care. But they suffer from one serious fault skin markings from the pressure caused b heaping up and covering. They cannot be wort much in the market. This puts clamping out o court for Apples that are to be sold. It i evident, however, that conditions in a clam suit the fruit; and it might be good polic to imitate those conditions in a fruit store The chief difference is that the clamp is muc damper than any store-room, unless it be a cellar Every Apple is quite wet. It might be a goo plan, even where the fruit room has an eart floor, to sprinkle water about occasionally, o even spray it over the fruit.

Feeding Fruit Trees.

Several times in these notes I have complained that we are working in the dark when we manure fruit trees. Hardly any experimental work on this subject has been done in this country. In America, however, much more has been done. I have been reading an American book which presents in one volume the fundamental facts about fruit growing which have been learned from hundreds of experiments carried out by different research stations in that country. The section dealing with manuring seems to me to be particularly valuable. In this country many of our advisers seem to have contracted a habit of recommending the application of phosphatic fertilisers and lime, and they are given to cautioning us against the overuse of nitrogen manures. American investigations indicate that phosphates, though necessary to fruit trees, are hardly even a limiting factor in either growth or cropping, because the tree, with its great root range, can nearly always find what it requires in the way of phosphates. Much the same remarks apply to potash. In the case of lime, there is apparently even less chance of benefit from its application, and even some risk of doing harm. Fruit trees, like forest trees, are remarkably tolerant of a tendency to acidity in the soil; and if we make the soil too alkaline we may prevent the trees om obtaining iron, which they need. The fact that we give fruit trees, with their deep ot range, the same treatment as we give to allow-rooting crops, which utilise only the top w inches of soil. The natural home of a uit tree is a wood where the soil is very ich in nitrogenous organic matter. Little onder, then, that nitrogen is most often e limiting factor in the growth and cropping f fruit trees, and that plenty of organic matter the soil is important. The old practical rowers who give their orchards heavy dressings f farmyard manure, shoddy, horn meal, and her bulky organic nitrogenous materials, are robably right. There have been cases in which osphatic manure and potash have done good, at nitrogen and organic matter are most often eeded.—*Market Grower.*

NOTICES OF BOOKS.

How to Form a Company.*

This little book, which has already been of rvice to many hundreds of business people ho have turned a private concern into a mited liability company, will continue its career usefulness in its present form, brought up date and in other ways improved. It is ritten in very clear language, and should be sily understood, even by those not accustomed the language of company law.

By way of criticism, it might be said that sufficient space is given to the subject of xtraordinary Special Resolutions, which are luded to in a couple of short paragraphs, but ot explained; and perhaps a brief summary of e chief clauses of "Table A" would be ore useful than the chapter entitled "Curiosies in Company Registrations," which, howver interesting, is a little redundant in a very nall book making an attempt to cover a ry big subject. However, on the whole the ok is excellent, and can heartily be comended to any of our readers desirous of conrting their business into a limited liability ompany with a minimum of expense.

The Culture of Pot Plants.†

The author in this book of 154 pages, including good index, has set himself a rather big task r the space available, leaving insufficient room r giving the cultural details for which the mateur looks. When the latter gets a greenouse, or even a cold frame, the plants are more r less entirely in his own hands. He gets gged in the matter of watering, ventilation and oking, all of which are very obscure things the beginner, as his failures tell him. The ltivation of room plants and their care are ealt with in general terms in one chapter. nnuals, herbaceous perennials, hardy and nder shrubs, scented and bulbous plants, etc., ave chapters to themselves, while each chapter ntains plants of the most diverse habit. This ould necessarily imply a good deal of detail in rder to give the beginner some idea of when plant and sow to get the plants in bloom y a given time. In a chapter on pot plants, rown for their ornamental fruits, he gives structions for potting Symphoricarpus raceosus any time in winter, with as many underround stems as possible. The plant is to be t down to the soil in spring, and many dwarf oots will arise in summer and fruit in autumn. his should be a novelty for those having uneated greenhouses. In most cases the author ses the botanical names for alphabetical rangement, giving the common name, if there e one, in brackets. He is generally quite p to date in the use of botanical names, giving nonyms where well known, but a few slips ccur. Osmanthus fragrans is illustrated by a ne drawing of Jasminum officinale, Sumpervivum alifornicum is an old garden name for S. alcareum, Cyperus alternanthifolius is also a isspelling.

HOME CORRESPONDENCE.

Gardens at Olympia.—After reading your note on "Gardens at Olympia," p. 128, I visited the Ideal Home Exhibition, and was interested in how well your observations coincided with my idea of the garden attractions. To my mind the most natural garden, with everything in keeping with springtime, was the one planted by Messrs. J. Carter and Co. (Fig. 72), with Daffodils, Crocuses, Prunus triloba and Rhododendron praecox, associated with grass and water, against a background of Conifers. Taking the garden section as a whole, there is more to be learned from the designs and architectural features than from the methods of planting, but of course one must make due allowance for the difficulties natural to such an early date; what would not be tolerated at Chelsea or Holland Park is overlooked at Olympia. I confess to admiration for Messrs. Winder and Thomson's model garden—house, tennis lawn, Rose garden, pergola, herbaceous borders, fruit and vegetable garden, fruit trees on walls, and tea house—all complete on the space about the size of an ordinary dining-table. The Cypress hedges were of real material, but all else was artificial, and yet so well done as to entirely redeem the model from that Noah's Ark style all too common in such efforts. I consider a word of praise is due to the artist who arrayed the scenic background for the exhibits next the wall. *C. B.*

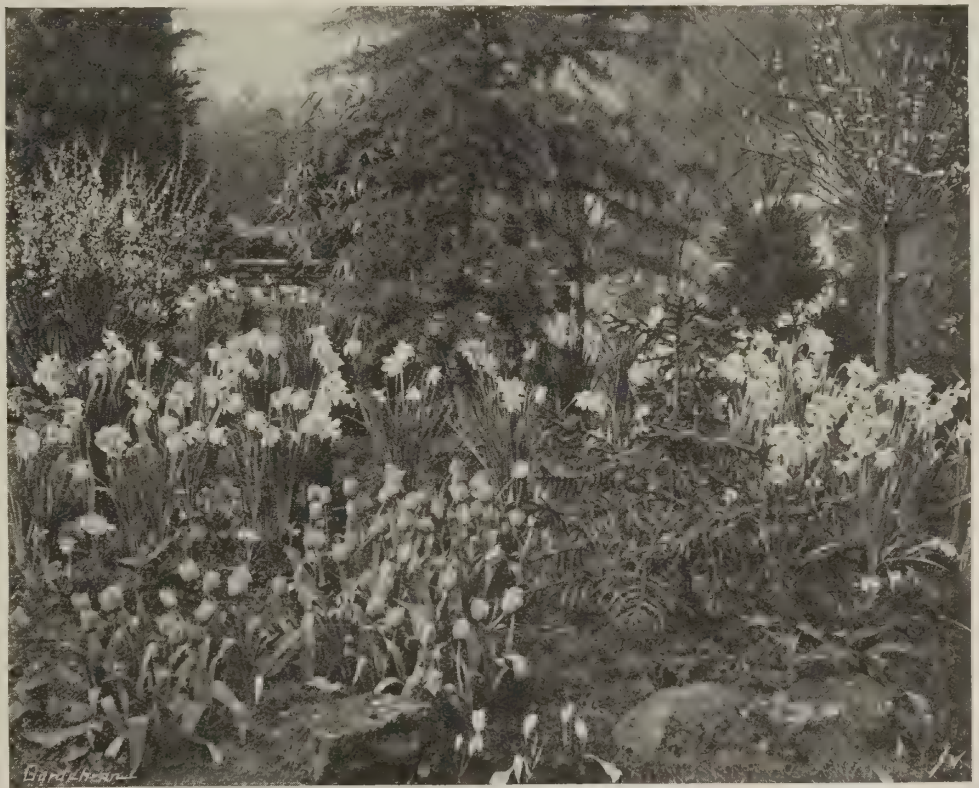
FIG. 72.—MESSRS. J. CARTER AND CO.'S SPRING GARDEN AT OLYMPIA.

Gardeners' Wages.—Under "Answers to Correspondents," in your issue of February 17, appeared a reply to *J. Med*, in which it is stated that 50s. to 55s. per week, with cottage, etc., is a fair wage for a gardener (head and experienced, I take it?). Do you, in all seriousness, think any head gardener with a position to uphold can live on such a low wage at present, considering the price of living? In spite of what we read about the cost of living coming down, most gardeners living far from shops still have to pay high prices for all commodities which tradesmen deliver. I do not know who is responsible for the answer referred to, but evidently the writer has never lived on a large country estate. One has only to glance down the list of pensioners of the Gardeners' Royal Benevolent Institution to discover what a poorly paid profession gardening is, and even this list only gives a few names of men who have formerly held positions under wealthy people. It is a pity their former employers do nothing for them in their old age and failed to pay a fair wage during the time they were having the best out of them. For *The Gardeners' Chronicle* to state that 50s. to 55s., etc., is a fair wage is a surprise, as I have always looked to this journal to champion the cause of the "blue-aproned" fraternity. It is a fact that some men taking a small pension from the army are accepting situations at a lower wage than usual, but this is no reason why those who carried on during the war should work at starvation rates. *G. W. K.*

[For the "Answer" to which our correspondent takes exception we were indebted to a well-known gardener, who has had experience in many parts of the country, is a frequent contributor to these columns, and in active employment. We submitted *G. W. K.*'s observations to him, and he replies as follows:—"I have entire sympathy with all *G. W. K.* has written regarding the position a gardener has to maintain on a small salary, but this does not alter the fact that the wage quoted for a medium-sized establishment is all that can be obtained. Employers will not pay more, and gardeners are not combined or in a position to demand more, and the unfortunate part of it is they do not ask for more. The chief offenders are ex-service men receiving pensions and gardeners out of employment owing to the reduction of establishments, all of whom are willing to accept almost any wage. I am afraid no better conditions can be obtained until gardeners combine in sufficient numbers to demand more."—Eds.]

Rhododendrons on Limestone.—On page 107 Mr. Kingdon Ward mentions "red earth" in the first paragraph of his notes. From this I conclude the limestone is "mountain limestone," as the soil on this is distinctly red and of a warm and porous nature—as compared to the lias limestone, the soil on which is of a light grey colour, cold and retentive of moisture. So we are one step nearer the solution of this interesting problem. *J. P.*

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* *How to Form a Company*, by Herbert W. Jordan. ondon, Jordan & Sons, Ltd. Price 1s. 6d. net.

† *The Culture of Pot Plants in Rooms, Greenhouses nd Frames.* By Hugh C. Davidson. London: Crosby, ockwood and Son, 7, Stationers' Hall Court, E.C.4. rice 5s. net

SOCIETIES.

ELSTREE AND DISTRICT HORTICULTURAL.

UNDER the auspices of the above Society a lecture, entitled "Greater Food Production," was given at Letchmore Heath, on Thursday, the 1st inst., by Mr. R. A. Ayre, farmer and market grower, who has a close practical and scientific knowledge of his calling. The chair was taken by the Rev. E. Stogdon, supported by Mr. E. Beckett, V.M.H.

Mr. Ayre divided his lecture under six headings, (1) Manures, (2) Seeds, (3) Cultivation, (4) Profitable Gardening, (5) Healthy Gardening, and (6) Aesthetic Gardening, and devoted the principal part of his remarks to dealing with chemical manures, which he stated would prove of greater importance as years went on in both gardening and farming, owing to the growing scarcity and increased value of farmyard manure, and the heavy cost of transport for what is generally known as "London dung." He placed farmyard manure first on the list in value, closely followed by a compound or complete chemical fertiliser. Dealing with what he described as unbalanced fertilisers, such as basic slag, guano and chemical guano, sulphate of ammonia, etc., he described their values and actions, and drew therefrom the inference of the necessity of compounding the various chemicals for the purpose. Lime he described as another most valuable manure, particularly necessary on heavy, cold soils. The speaker, in emphasising the value of manures, related that he spent annually well over a thousand pounds on manures for his farm and garden.

Seeds, he urged, should be the best procurable always, and dealing with the Potato, pointed to the necessity of obtaining "sets" for planting from grounds further north than one's own, and spoke of the necessity of properly sprouting them before placing them in the soil. He also stated his opinion that the seed sets should be bedded in farmyard manure, with a sprinkling of complete chemical manure at the same time.

He stated that gardening as well as farming could be made profitable if proper methods were practised, and he gave examples of experimental and practical working to this end, detailing processes in which various manures had been employed, and cases when two and three crops had been obtained from one area in twelve months.

Many questions were put to Mr. Ayre by his large audience, which he dealt with quickly and concisely, and after these had finished, Mr. Beckett, in moving a vote of thanks for such an instructive lecture, referred to having witnessed and taken the keenest interest in Mr. Ayre's highly successful methods of farming over a period exceeding 30 years, and in support of the lecturer's contention that soil inversion was essential, referred to his experience at Aldenham, where the kitchen garden, which had formerly been scratched over for more than a century, was pointed out to him on his first arrival as worked out. However, by trenching the ground 3 feet 6 inches deep and bringing up the sub-soil to the surface, he had disproved this statement, and the very first season gathered excellent crops from the condemned ground.

READING AND DISTRICT GARDENERS'.

THE annual social gathering of the Reading Gardeners' Association was held in the Abbey Hall on the 28th ult., when two hundred and fifty members and friends spent an interesting and enjoyable evening. The hall was decorated with a large number of Cinerarias, Daffodils, Irises and Palms from Messrs. Sutton's trial grounds, and Daffodils, Tulips and Primulas from the Vice-President's gardens, Hillside. The President, Mr. Councillor Frank E. Moring, presided, and he was supported by Mr. Councillor T. Haldron (Honorary Member) and the Social Sub-committee. The proceedings included a musical entertainment and a burlesque play. During the interval refreshments were provided by the President.

ROYAL HORTICULTURAL.

MARCH 13 AND 14.—The cold and stormy weather experienced on March 13 did not affect the exhibition at the Royal Horticultural Hall, nor did it appear to reduce the number of visitors. The exhibition was a fine one, and consisted chiefly of Orchids, Carnations, Daffodils, Hyacinths, early spring flowers, and Rhododendrons, but the two outstanding exhibits were those of gorgeous Clivias shown by Sir GEORGE HOLFORD, and of Hyacinths arrayed in a huge formal bed on the floor, by Messrs. SUTTON AND SONS.

Her Majesty the Queen paid a visit to the hall on the first day, and came unannounced. Sir George Holford and Mr. W. R. Dykes acted as escort, and Her Majesty stayed quite a long time, inspecting every exhibit, and in several cases chatting and shaking hands with the exhibitor. Needless to state, this gracious Royal patronage of the first two-day show of the season was very greatly appreciated.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), A. McBean, W. H. White, Arthur Dye, J. T. Barker, H. T. Pitt, H. G. Alexander, Henry H. Smith, W. J. Kaye, Frederick J. Hanbury, J. Wilson Potter, C. J. Lucas, R. Brooman White, Stuart H. Low, Fred. K. Sander and Chas. H. Curtis.

FIRST-CLASS CERTIFICATES.

Cymbidium Merlin, Westonbirt var. (*Dryad × Alexanderi*), from LT.-COL. SIR GEO. L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander). A model flower of the largest size among the many favourite crosses with C. Alexanderi, at Westonbirt. The broad segments of wax-like substance were Tea-rose blush, the lip being freckled and spotted with ruby red in front, and the upper side of the column dark claret; the plant bore six flowers.

Odontoglossum Llewellyn (*amabile × Georgius Rex*), from H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). The plant shown was the original type raised by Messrs. Charlesworth, and for which a Preliminary Commendation had been given in its seedling stage. The plant, as now shown, had a very strong spike of large and perfectly formed flowers of an intense ruby-claret colour, with white front to the lip and some slight white markings on the margin.

AWARDS OF MERIT.

Odontonia Dora (*Miltonia Bleuana × Odm. Dora*), from Messrs. CHARLESWORTH AND Co., LTD., Hayward's Heath. One of the most refined of the Odontonias raised by the firm; the large flowers were intermediate in form between the parents, the Miltonia showing more strongly in the front. The broad sepals and petals are heavily blotched with rosy mauve on the inner two-thirds, the outer being blush white; the broad lip had ruby markings in front of the crest and rose-pink interior lobe, with some rose lines.

Cymbidium insigne rhodochilum, from Messrs. SANDERS, St. Albans. Two superb varieties of their original C. insigne Sanderi type were shown, both being of great beauty and exhibiting the rich crimson purple lip not yet produced in any of the hybrids. The flowers of the variety rhodochilum bore two spikes of large blush white flowers, the broad, well expanded lip being ruby-red in varying shades.

Cymbidium insigne St. Andre, from Messrs. SANDERS. A large and finely formed flower, white with slight pink lines over the veining, and rich purple lip.

GROUPS.

Messrs. SANDERS were awarded a Gold Medal for a large and well-arranged group containing a large selection of fine hybrids and species for the season, and all exceedingly well grown. The fine Cymbidiums were an outstanding feature, the new C. Adonis (Pauwelsii × Coningsbyanum) being one of the best and distinct in size and shape. At the back were showy Dendrobiums, all well grown and freely bloomed. Odontoglossums and Odontiodas were well shown, the scarlet of the latter giving good effect. Among the Cattleyas, C. Tityus var. Dreadnought, an enormous deep rose flower with very broad crimson-purple lip, and a fine, large white C. Suzanne Hye de Crom, still a leading form, were noted. Laelio-Cattleyas were well represented, and a very large number of old, but now rare species, including the true Laelia Jongheana, the little orange L. harpophylla, the yellow Laelia flava, Masdevallia civilis, the rare M. xipheres, M. simula, Xylobium leontoglossum, the charming carmine Cochlioda rosea, Bulbophyllum tremulum, and other Bulbophyllums, the little blue Vanda coerulescens, an interesting selection of Coelogynes, and good Oncidium Cavendishianum.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), was awarded a Silver Banksian Medal for a good group specially well furnished with Odontoglossums and Odontiodas. Among the former, his fine, white forms of Odm. crispum, including Zenobia, were remarkable and arranged well with the many richly coloured Odontiodas, the best being Oda. Cardinal, which has not yet been surpassed. At the back of the group were three fine specimens of the rare Neo-Moorea irrorata, with species of Odontoglossums and Oncidiums.

Messrs. STUART LOW AND Co., Jarvisbrook, Sussex, were awarded a Silver Flora Medal for a showy group of Odontiodas, Odontoglossums and Sophro-Cattleyas. The centre of the group was of white Cattleyas, and the rich red Oncidioda Stuart Low, with its twining sprays of showy flowers arranged well with them and the brightly coloured Sophro-Laelio-Cattleya Marathon and other Sophronitis crosses; Laelia Jongheana, L. flava, L. harpophylla, fine specimens of Dendrobium Brymerianum and other Dendrobiums, both hybrids and species were also shown.

OTHER EXHIBITS.

Lt.-Col. Sir GEO. L. HOLFORD, K.C.V.O., showed Cymbidium Kittiwake, Westonbirt variety, with eleven milk-white flowers, rose-mottled on the lip; and C. President Wilson, Westonbirt var. (Lowianum × Alexanderi), a very showy hybrid with strong features of the best C. Lowianum, but much improved.

The DUKE OF MARLBOROUGH, Blenheim (gr. Mr. J. T. Barker), showed Brasso-Cattleya Peace (B.-C. Digbyano-Mendelii Fortunei × C. Dusseldorfei Undine), a very fine white form, and Cypripedium Moonstar (Boltonii × niveum), a good white with minute purple dots.

PANTIA RALLI, Esq., Ashtead Park, Surrey (Orchid grower, Mr. Farnes), sent Brasso-Cattleya Albion, a good, pure white of model form.

Messrs. CHARLESWORTH showed Odontonia Sheila (Miltonia Bleuana × Odm. Lambeanianum), with five handsome flowers.

Floral Committee.

Present: Messrs. H. B. May (in the chair), D. B. Crane, Chas. E. Pearson, G. W. Leak, W. P Thomson, John Heal, C. Williams, W. Howe, Chas. E. Shea, W. B. Gingell, C. R. Fielder, J. B. Riding, J. F. McLeod, H. J. Jones, G. Reuthe, Clarence Elliott, W. Cuthbertson, W. J. Bean, Reginald Cory, Jas. Hudson, R. W. Wallace, R. C. Notcutt, W. B. Cranfield, Hugh Dickson, and W. G. Baker.

On opening the business of the committee, Mr. May said: "It is with unfeigned regret I refer to the great loss horticulture has sustained by the death of Mr. Wilks. By that sad event the R.H.S. is bereft of its greatest secretary, for it is not too much to say that the status of this great Society as we know it to-day is mainly due to his untiring energy, his great industry and sagacity. A man of many parts, his predominant characteristic was, I think, his capacity for work. Labour was to him an absorbing pleasure; letter writing a delightful pastime. Of his critics few could resist the lure of his magnetic personality and his charm as a conversationalist His great but laudable ambition was to make the Society he loved so well the greatest of its kind in the world—who shall say he failed? A great figure has gone from ur midst. May he rest in peace." All the nembers present joined with the chairman in his expression of appreciation, sympathy and oss.

Awards of Merit.

Saxifraga Valerie Keevil. A pretty encrusted axifrage, with very small, narrow leaves, naking a wee little plant rising about three-fourths of an inch high. It sends up three-inch tems on which are carried one or two rounded lowers of a deep purplish rose colour, with purplish maroon centre. Shown by Messrs. M. Prichard and Sons.

Clivia Westonbirt Perfection. A grand ariety, of splendid form, its big flowers combining to make an enormous truss. The colour s deep orange, shaded with scarlet and with a oft yellow throat.

Clivia Lady Holford. In this variety the olouring is very soft and beautiful—pale apricot with soft yellow throat. The flowers are of xcellent form and carried in a huge truss.

Clivia Field Marshal. In point of colour his variety is intermediate between the two thers named. It may be best described as oft orange with a pleasing shade of yellow in he throat. In form of flower and size of truss his is as fine as the other varieties deservedly onoured.

The three foregoing varieties of Clivia were xhibited by Sir George Holford (gr. Mr. lark), Westonbirt, Tetbury, Gloucestershire.

Groups.

The magnificent collection of Clivias from t.-Col. Sir Geo. Holford, C.V.O. (gr., Mr. . R. J. Clark), Westonbirt, Tetbury, created lmost an *impasse* in the hall. The splendidly rown plants, each bearing several magnificent russes of bloom, made a memorable show, and may be confidently stated that their equals ave never before been seen at any exhibition. he three new varieties were prominently laced, and were shown in quantity. Although ey suffered somewhat in comparison with the ately Clivias, the marginal groups of Lachenalias were of great excellence, and if shown alone ould have won even more admiration than was e case (Gold Medal).

Of quite distinct character, yet replete in ttraction, was the Gold Medal exhibit of yacinths superbly arranged by Messrs. Sutton nd Sons. These were displayed on a large oval loor space in the body of the hall. The firm visely resisted what might have been a temptation to relieve the regularity of the flower pikes with some other species, but Messrs. utton and Sons contented themselves with a mall central grouping of Pyrus Malus varieties n full bloom. The very many Hyacinths were et out in colour blocks radiating from this entrepiece, and the effect was magnificent. arge numbers of pot plants in many varieties ere employed, and of these such sorts as King f the Blues, the darker blue Menelik, Queen of he Pinks, La Victoire, Dr. Lieber, and nchantress compelled unstinted admiration Gold Medal).

On a table space Messrs. R. and G. Cuthbert isplayed many well-grown Hyacinths in such orts as City of Haarlem, Queen of the Blues, ady Derby and Ivanhoe (Silver Banksian edal).

Hyacinths were the chief feature of the ttractive exhibit arranged by Messrs. J. arter and Co. These included such sorts as orregio, Duke of Westminster, Marconi, and range Above; the last, of uncommon name, a shade of orange. In the centre there was n imposing group of King Alfred Daffodil. ulips were also shown, and the many plants ere pleasantly interspersed with Maidenhair erns (Silver-gilt Flora Medal).

Polyanthuses of a particularly good strain were again shown by Mr. G. W. Miller, who cluded several particularly well laced flowers. heir excellent True Blue Primroses were shown y the Chalk Hill Nursery Company in greater uantity and in even better colour than at the revious meeting. They also included a very ne vase of Crown Imperials. In an interesting ollection of spring flowers Mr. F. G. Wood rranged several batches of very floriferous ouble Primroses.

There were many exhibits of Alpine flowers. Mr. Clarence Elliott made a pleasing little rockery, and furnished it with appropriate plants, amongst which Saxifragas predominated, and of these S. Greisbachii and S. apiculata alba were very interesting. He had a bush of Thymus vulgaris argenteus of very good type (Silver Banksian Medal). Associated with Alpines in the exhibit of Mr. G. Reuthe was a small collection of Rhododendrons and sprays of Prunus Pissardii (Silver Banksian Medal).

Adjoining a good group of Azaleas of all types Messrs. W. Cutbush and Son displayed a well-conceived alpine garden. Messrs. R. Tucker and Sons included several plants of Saxifraga Sundermanii (of Kew), a free flowering white species, S. Sartori, S. dalmatica, and Draba aizoides. Mr. Maurice Prichard had a goodly batch of Primula capitata; while Messrs. Carter, Page and Co. included attractive groups of Anemone Pulsatilla. In an exhibit by Mr. W. Wells, junr., there were Primula marginata and Pulmonarias of good quality. Messrs. Waterer, Son and Crisp included Anemones and Azalea Hinomanyo in their exhibit of spring flowers. Messrs. Baker's, Ltd., had a fascinating model of a rock garden and pool.

Roses were well shown by several exhibitors. Mr. Elisha Hicks staged Columbia, Padre, Premier, La Fayette, and an attractive vase of Coral Cluster (Silver Banksian Medal). An arch of Fortune's Yellow in the collection of Mr. G. Prince attracted a great deal of admiration, as also did the vase of the new Allan Chandler, a rich crimson bloom that is very shapely in the bud state.

Carnations of considerable merit were shown by Messrs. Stuart Low and Co., who gave prominence to Red Ensign, Mrs. T. Ives, Arnos Grove, Hon. Nita Weir and Violet Mond. Adjoining these they had well-flowered Mimosas, Cyclamen, Epacris and other greenhouse plants (Silver Flora Medal). Messrs. Allwood Bros. had many splendid Carnations, including Edward Allwood, Wivelsfield Apricot, Mary Allwood and Wivelsfield Beauty. Varieties largely grown for market purposes were shown by Mr. C. Engelmann, who included Topsy, Jazz, Bona, Circe and Benora.

Messrs. W. Artindale and Sons staged an excellent collection of Primula obconica, illustrating a good strain of this useful decorative plant. Such Clematis as Miss Bateman, Sir Garnet Wolesley, with Camellias, Wistarias, and Jasminum primulinum were shown by Messrs. L. R. Russell, Ltd. (Silver Banksian Medal).

A very attractive display of forced shrubs was made by Messrs. R. Wallace and Co., who used Laburnums, Wistarias, Viburnum Carlesii, Azalea malvatica, and Brooms to grand effect (Silver Banksian Medal). Andromeda floribunda figured largely in a collection by Messrs. J. Cheal and Sons, who also showed several species of Helleborus. Messrs. J. Piper and Sons had a good plant of Veronica Hulkeana in their exhibit.

A very showy collection of Rhododendrons from out-of-doors was staged by Messrs. R. Gill and Sons. The varieties Bernard Gill and Beauty of Cornwall were especially attractive. They also showed their giant strain of Anemones, and very many spathes of Richardia, apparently from the open. On the "New Plant" space Mr. Lionel de Rothschild showed a magnificent truss of Rhododendron Lord Milner, of bright crimson colouring, and one of the fine R. calophytum; while Mr. M. E. Stevens showed R. Louise Stephens and R. Coverwood, two good deep crimson sorts.

Narcissus Committee.

Present: Messrs. R. Wallace (in the chair), J. W. Pearson, W. Poupart, F. H. Chapman, H. G. Hawker, Herbert Smith, W. B. Cranfield, Reginald Cory, G. Churcher, J. W. Jones, G. W. Leak, G. Reuthe, and Charles H. Curtis (hon. sec.).

The Chairman made reference to the loss the Society had sustained by the death of the Rev. W. Wilks, and it was agreed that an expression of the committee's appreciation of Mr. Wilks' services to horticulture be placed on the minutes, and also sent to the Council.

Awards of Merit.

Narcissus Great Dane.—Although exhibited as a show flower, this fine trumpet Daffodil promises to be useful for garden decoration as it appears to have good constitution. The big, bold handsome flowers are held in good position by the stout stems, and though the broad, soft yellow perianth segments leave something to be desired in respect of form, the trumpet is particularly attractive, being rich yellow, with a broad, recurving, frilled mouth. Shown by Messrs. Barr and Sons.

Narcissus Golden Empress.—This is a showy trumpet variety raised in Holland by Messrs. de Graaff. The flowers are bold, and carried on stout stems; in form they are shapely and well proportioned. The colour is rich golden yellow, and the trumpet is prettily frilled. Shown by Messrs. Barr and Sons.

Narcissus Golden Herald.—We regret that in our issue of March 3, p. 125, Narcissus Golden Herald was inadvertently named King Herald.

Preliminary Commendation.

Narcissus Fortune. — A beautiful incomparabilis variety of perfect form; the spreading, rounded perianth segments are deep yellow, and the wide, frilled crown is rich orange yellow. Flowers of this variety are, we believe, already being sent to market. Shown by Messrs. Herbert Chapman, Ltd., Rye.

Groups.

Large-flowered trumpet varieties were again very prominent in a collection of Narcissi, well arranged by Messrs. Barr and Sons. Besides such named sorts as Shylock, King Harold, Silvanite, Vivian Gosnell, Gwendolin and General French, there were many splendid seedlings. Sea Nymph, a small bloom, with an apricot-coloured tube, attracted a deal of admiration, while the vivid corollas of Lucifer, Sunrise and Lady Bird made them very attractive. The incomparabilis variety Mermaid was also of much more than average merit. Adjoining the Daffodils Messrs. Barr showed alpines and Fritillarias (Silver-gilt Flora Medal).

The collection of Narcissus blooms from "home-grown bulbs," arranged by Messrs. J. R. Pearson and Sons, was exceedingly creditable and the arrangement was distinctly good. The chief varieties were Firebrand, Vega, Mrs. R. Sydenham, Gipsy Queen, Florence Pearson, Brilliancy, Phantasy and February Gold, the last-named being a small Trumpet variety, of rich yellow colour, and cut from the open ground (Silver-gilt Banksian Medal).

Massed varieties were displayed by the Donard Nursery Company, who used such sorts as Southern Gem, Quicksilver, and a good seedling of the Leedsii type, and Gog and Magnificence of the deep yellow trumpet varieties (Silver Flora Medal). Had the weather been more kindly so that the Darwin Tulips had opened a little more, the collection of bulbs in fibre, so well arranged by Messrs. R. H. Bath, Ltd., would have gained in attraction, though such sorts as Bleu Aimable, Prof. Michael Foster, and Flamingo well illustrated their value. At one end there was a generous quantity of cut spikes of Chionodoxa Luciliae, which was greatly admired by many of the visitors (Silver Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (chairman), J. Cheal, H. S. Rivers, P. C. M. Veitch, W. Poupart, W. G. Lobjoit, S. B. Dicks, Geo. F. Tinley, Owen Thomas, Ed. Beckett, H. Markham, F. Jordan, G. Reynolds, Geo. Kelf, G. Weston, G. Woodward, W. Bates, W. H. Divers, J. Basham, H. V. Taylor, and N. Rawes.

The Chairman referred to the great loss the Society and the Fruit and Vegetable Committee have sustained in the death of Mr. Wilks. He stated that it needed no words of his to prove the important part Mr. Wilks played in British horticulture, for the present position of the Royal Horticultural Society was almost solely due to his efforts. The members of the committee would miss his cheery presence and valuable advice in their deliberations. It was resolved to send a letter of condolence from the committee to the relatives of the deceased reverend gentleman.

Mr. P. C. M. Veitch showed from the Royal Nurseries, Exeter, some splendid fruits of Apple Lord Hindlip, which received a First Class Certificate on February 8, 1898.

Messrs. Sutton and Sons were awarded a Silver Knightian Medal for a collection of vegetables, comprising splendid heads of Snow White, Easterside and Reading Giant Cauliflowers; Excellent A1 and Improved Reading Onions; very large new Red Intermediate and matchless Scarlet Carrots; Sutton's Black Beet; fine tubers of Majestic and other Potatos; also Leeks, Scorzonera, Salsafy, Witloof Chicory, Perpetual Spinach, Stachys tuberosa, Black Spanish Radishes and Kales, ornamental leaved sorts of the last being utilised as a centre-piece.

Obituary.

George Maclennan.—A greatly esteemed and highly accomplished gardener, Mr. George Maclennan, died on Thursday, the 8th inst., at the ripe old age of 80 years. Born in Stonehaven, the county town of Kincardineshire, he entered as a young man the gardens at Fetteresso, near Stonehaven, the property of the Duffs of that ilk. Here he had charge for nearly fifty years, his service extending in all to nearly sixty years. In his heyday, Mr. Maclennan had some fine work to his credit, and for many years his name as a prize-winner was very prominent at leading horticultural exhibitions. He also did capital work as a judge, and his knowlege and kindly advice were ever at the command of those in difficulty or doubt. Mr. Maclennan retired a few years ago to live with a married daughter in Aberdeen. A few weeks ago he went on a visit to another married daughter in Torquay, Devonshire, where he was overtaken by the serious illness which ended fatally. He was predeceased by his wife, and is survived by one son and two daughters.

Edward Owen Greening.—The world has lost a man of striking personality by the death, on the 5th inst., of Mr. Edward Owen Greening. The deceased gentleman was in his 87th year. Born at Warrington, he remembered the difficult times of his earlier years, and doubtless his early experiences led him to see the advantages of co-operation, for in the great co-operative movement he was one of the pioneers; Bright, Cobden, Hughes and Ruskin were his friends. So far as horticulture is concerned, Mr. Greening will be remembered as the organiser of the great Co-operative Flower Shows held annually at the Crystal Palace in pre-war days; and as managing director of the One and All Horticultural and Agricultural Association, and of One and All Seeds. For fifteen years he was chairman of the Co-operative Festival, of which the flower shows already noted were a part. He was a man of unflagging energy, fine appearance, and boundless optimism; a capital speaker and genial companion. At one period of his life he was responsible for the publication of a large number of booklets dealing in homely fashion with popular flowers.

The Earl of Plymouth.—The late Earl of Plymouth, who died on Wednesday last, was a keen horticulturist, and the gardens at both St. Fagans Castle and Hewell Grange are amongst the most important in the country. St. Fagans is a very beautiful estate, and the gardens are of great extent, containing many fine horticultural features, the situation and natural scenery lending themselves admirably for the making of a first-class garden. Hewell Grange is celebrated for the fine examples of topiary work which the gardens include. Both these gardens are maintained in a high state of excellence, the former under the skilful care of Mr. Hugh Pettigrew, and the latter formerly under the care of his brother Andrew, who is now superintendent of the public parks and gardens of Cardiff; the gardens at Hewell Grange are now under the care of Mr. F. Molyneaux. The late Earl of Plymouth was a very busy man, but in spite of the many calls on his time he had consented to preside at the annual festival dinner of the Gardeners' Royal Benevolent Institution in July next, and the announcement of this fact was made in our last issue, on the eve of our going to press, just before his sudden decease.

The death of The Right Hon. The Earl of Plymouth removes from amongst us one of the finest types of English nobleman it has been my good fortune to meet. During the seven years I was gardener at Hewell Grange, I came in contact with him a good deal, and a walk round the gardens with him was always a pleasure and a joy, as well as educative. The charm of Hewell lies in its sense of restfulness; somehow it breathes the spirit of peace, a refreshment to mind and body. The late Earl loved to spend his week-ends in its finely wooded grounds with its varied bird life, a veritable bird sanctuary. During his convalescence after a long, trying illness, he made rapid progress once he was able to be taken to inspect the trees and flowers he knew so well. He had his likes and dislikes; a Rose without scent was anathema to him, yet all sweet-scented flowers were a delight, and he was fond of picking these for his study table. The following incident will suffice to show the great man he was. In the early spring of 1917, when it became evident that there was a serious shortage of Potatos, he gave me instructions not to send any more for the use of the household, but to reserve them for the less well-to-do who could not afford to buy substitutes; how grateful these people were is known only to myself. When I decided to leave private for public service, I left Hewell with a heavy heart knowing that in leaving Lord and Lady Plymouth I was parting with employers much above the average in their consideration for others, and shall always regard as a signal honour his travelling from London to be present at my presentation on leaving. How memorable are his words that night: "Whatever changes may come to us in life, they can never take from us the happy memories of the past." I have only such of Lord Plymouth. On the bowling green he was just one of ourselves; he simply could not tolerate the sycophant, and had the happy knack of putting everyone at their ease. A man of few words, yet he was always unstinted in his appreciation of work that met with his approval. "I shall not look upon his like again." *James J. Graham, Heaton Park, Manchester.*

TRADE NOTES.

Messrs. Charles H. Pugh, Ltd., of Whitworth Works, Birmingham, have, in addition to their useful and reliable lawn mowers, a mechanical edge trimmer, by means of which margins of lawns and turf around flower beds may be kept perfectly true to line, and cut far more accurately and with greater speed than is possible with an ordinary edge-cutting tool. The same firm has also a device which may be attached to an Atco lawn mower. This is known as the Atco Turf Cultivator, and it bears spikes at quarter-inch intervals, which, when revolving at considerable speed, while the mowing machine is in use, act as a cultivator of the turf, while the inventors claim for it that it also serves to destroy Plantains, Daisies and other fleshy-leaved weeds, loosen mossy growth and encourage the growth of the finer grasses.

Dealers in implements and horticultural and agricultural sundries, who may wish to exhibit at the exhibition the Royal Dutch Agricultural and Horticultural Society will hold in Amsterdam in September, should communicate with Messrs. Gebrueders Lukeij, 81, Haarlemmerstraat, Amsterdam, who are the concessionaires of the available space.

As a result of the Chamber of Horticulture's recent deputation to the Ministry of Agriculture, and the supporters of the new Merchandise Marks Bill, a special clause has been inserted in the Bill, ordered by the House of Commons, on February 16, 1923, to be printed. This clause relates to the prohibition of the importation of raw fruit or vegetables or fruit pulp unless such produce either is contained in a package on which there is conspicuously branded or stamped the name of the country in which the same was produced, or the word "imported," or, in the case of any article which may be exempted from such requirement by a regulation made by the Ministry of Agriculture, is contained in a package to which is attached a label bearing such name or word. This Bill will come up for the second reading in the House of Commons on March 16 next, and will then be referred to Committee.

Arrangements in connection with the Ghent International Exhibition are proceeding favourably, but it is hoped that additional offers to participate in the collective British exhibit will be received during the present month. The exhibition takes place on April 14-22, and the importance of making the British section worthy of the great traditions of British horticulture cannot be emphasised too strongly. Firms able to help in the floral displays are earnestly asked to communicate with the Secretary of the Chamber of Horticulture, 13, Bedford Square, W.C.1, from whom particulars can be obtained. All transport arrangements are being made, exhibitors only having to forward exhibits to London. Continental countries are making a great effort at this quinquennial exhibition, and it is to be hoped that the British display will not only equal that of other countries, but excel, as at Antwerp in 1920.

ANSWERS TO CORRESPONDENTS.

Bleached Leaves of Raphis flabelliformis and Dracaena: *E. S.* No signs of fungous disease could be found in the Palm or Dracaena leaves submitted, but they were badly infested with scale insects. The leaves should be carefully sponged with a soapy insecticide, and a piece of bluntly-pointed stick may be used to remove the scales which adhere closely to the prominent veins on the underside of the leaves but this should not be used in such a way as to damage the epidermis of the leaf. The bases of the leaf stems should also be carefully examined, as they may contain some of the scale insects.

Dianthus caesius: *G. E. M.* There should be no difficulty in propagating this Pink if the cuttings are taken in June, inserted in sandy soil, and kept in a close frame until they are rooted. Do not pot them off until the autumn but grow them in a cold frame in the cutting pots. This Dianthus may also be increased by means of layers, like the Carnation. Stopping should not be done at the same time as potting; it is best to defer this until the roots are again active.

Propagating Japanese Acers: *Mrs. J.* Cuttings of Japanese Maples may be rooted under similar conditions to those suggested for Viburnum Carlesi. The usual method, however, of propagating Acers is by grafting in early spring and budding in summer, using one of the common Maples as a stock.

Browned Fern Fronds: *D. C.* The young Maidenhair Fern fronds have evidently been allowed to remain moist for a lengthy period and the pinnules have adhered. A poor circulation of air, coupled with low temperature, may have added to the trouble. If the plants had been allowed to become dry at the roots the fronds would have shrivelled.

Names of Fruit: *G. H. F.* 1, Court of Wick. 2, Grange's Pearmain. *A. B.* Winter Ribston. *W. H. W.* An Apple known in Kent as Bastard Blenheim.—*J. G. and Co.* Knight's Monarch.—*F. D.* 1, Dean's Codlin; 2, Round Winter Nonesuch; 3, Tower of Glammis; 4, Baumann's Winter Reinette; 5, Lord Burghley.

Name of Plant: *T. O. C.* Antirrhinum Asarina.

Communications Received.—G. P.—J. S.—E. S.—L. G. B.—W. B. C.—E. B.—O. T.—E. K.—J. G.—W. F. T.—E. H. F.

THE
Gardeners' Chronicle

o. 1891.—SATURDAY, MARCH 24, 1923.

CONTENTS.

lpine garden, the—
  Ranunculus glacialis 157
  Vinca herbacea .. 157
msterdam, International Horticultural Congress at 155
sparagus 165
edford, Mr. A. .. 156
og garden—
  Lysichitum camtschatcense .. 157
ooks, notices of— 160
hrysanthemums, late flowering 165
oreign correspondence—
  Cultivation of Asparagus 165
orrest, Mr. G., and Mr. F. Kingdon Ward, return of .. 156
ruit register— 165
arden Notes from S.W. Scotland .. 162
Gardeners' Chronicle Seventy-five years' ago 157
ardeners' wages .. 166
Ghent Show, British and Irish members of the International Jury at 156
ladioli, origin and evolution of summer-flowering 164
ardy flower border— 159
ournal, a new horticultural 155
aw notes 167
aiden, Mr. J. H., honour for 155
Ministry of Agriculture, Intelligence Department of 155
Montbretias, the culture of 166
National Institute of Agricultural Botany 156
Obituary— 167
Olympia, gardens at .. 166
Orchid notes and gleanings— 160
Plants, new or noteworthy— 159
Plants, the naturalisation of 164
Potato, degeneration of the 157
Primulas for home decoration 166
Robinia Pseudacacia, poisonous pods of .. 166
Romneya Coulteri .. 166
Rue 161
Salads, winter .. 166
Societies—
  Leeds and District Market Gardeners' 167
  Reading and District Gardeners' .. 167
  Royal Caledonian Horticultural .. 167
  United Horticultural Benefit & Provident 167
Trees and shrubs— 161
Ward's, Mr. Kingdon, seventh expedition in Asia 162
Week's work, the .. 158
Wilks, the late Rev. W. 155
Wisley, notes from .. 163

ILLUSTRATIONS.

pple Lord Hindlip 165
edford, Mr. A., portrait of 156
ivias, Sir George Holford's Gold Medal Exhibit of 163
ecaisnea Fargesii, fruits of 161
anunculus glacialis 157
hododendron praevernum 159

VERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 42.1°.

CTUAL TEMPERATURE :—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 21, 10 a.m. Bar. 30.1; temp. 48°, Weather—showery.

The Intelligence Department: Ministry of Agriculture.

Horticulturists who read the *Report* (1919-1921) of the Intelligence Department of the Ministry of Agriculture, will be gratified with the evidences which it provides that the Ministry is combinng to display generous solicitude for the progress of "small" as well as that of "large" cultivation. The Horticultural Division at the Ministry, established some years ago, has been maintained, and although it may not possess the large measure of independence enjoyed by other Divisions, t would seem to have ample scope for the exercise of initiative. Among the duties which fall to the Division are those concerned with the development of allotments. At the present time the allotments of England and Wales number 1,330,000, and are estimated as being capable of supplying two million people with Potatos and vegetables throughout the year. There would seem to be no insuperable reason why this number should not be increased. There was naturally a fall in the number of allotments after the war, but that was due to the fact that much of the land set apart for them could not be devoted in perpetuity to allotment use. With the growth of towns the need for allotments and the difficulty of obtaining them increase, and it is therefore important that the Ministry should devote all its energies to stimulating municipal activity in the provision of increased facilities for allotment holders. Another subject, in which the Ministry of Agriculture cannot fail to be interested, is that of the provision of small gardens attached to the houses which, it is to be hoped, will be erected shortly. The need for economy and the cost of building are undoubtedly serious facts, which have to be faced, but at the same time the provision of garden space in all districts where space is to be had is a need which neither administrators nor statesmen ought to ignore. In addition to work in connection with allotments the Horticultural Division has the carrying out of measures destined to promote fruit growing. Generous provision has been made by the Ministry for research in this important branch of horticulture at the fruit stations at Long Ashton and East Malling, and at the Experimental Station at Waltham Cross. There is need, however, for a station for research in vegetable crops, and although it would be inopportune to press for its establishment now, the need for such a research station should be kept in mind both by the Ministry and by growers, so that it may be established as soon as financial conditions permit the necessary expenditure. The decision of the Ministry to do all in its power to ensure the sale of clean nursery stock has, we are convinced, the support of cultivators generally, and particularly that part of the decision which insists that imported fruit stocks shall be free from disease. The work of the Ministry in connection with Wart disease continues to engage and deserve much attention; the experimental part of this work is now carried out by the National Institute of Agricultural Botany at its farm at Ormskirk, where immunity trials are conducted. In the Advisory Council, horticulturists have the means of communicating officially with the Ministry, so the representation of any needs felt by the community is assured. It is a pleasure to record that the large and well-considered scheme for county horticultural education is making progress. Already twelve counties have appointed horticultural superintendents, thirty-five counties whole-time horticultural instructors, and forty-two part-time instructors. As part of the work of education, the Ministry has encouraged the formation of demonstration plots in the counties, and at the present time there are fifty-six fruit plots, twenty vegetable plots, three hundred and ninety Potato, and one hundred and nine demonstration allotment plots. It would be difficult to exaggerate the value which, with good organisation and correlation, is to be derived from the setting up of these little stations, each of which should be a centre for demonstrating what is best and how best to cultivate it.

Royal Horticultural Society.—The next meeting of the Committees will be held on Tuesday, the 27th inst. The exhibition will be held on two days—Tuesday and Wednesday. At 4 p.m. on the first day Dr. A. B. Rendle, F.R.S., V.M.H., Keeper of the Department of Botany in the British Museum, will give the first of the two annual Masters Memorial Lectures on "Plants and their Environment." The lecture will be illustrated by lantern slides.

The late Rev. W. Wilks.—The following communication has been sent us by the Secretary of the Royal Horticultural Society:—"At the meeting of the Council of the Royal Horticultural Society on Tuesday, March 13, Lord Lambourne spoke of the loss which the Society and the Council had incurred through the death of the Rev. W. Wilks. He said that they were meeting under the shadow of a great sorrow, for Mr. Wilks had meant much to the well-being of the Society. His great personality and his intense activity in the stormy days of the Society's early life had been of the greatest value. His ripe judgment and experience had always been at the call of anyone who wished to avail himself of them, and, though he was very determined in his opinions, he never hurt anyone's feelings, and his good temper and tact, even in the most difficult positions, had been of the greatest possible use. Lord Lambourne then moved the following resolution, which was adopted in silence:—'The Council has heard with the deepest regret of the death of Mr. Wilks, for thirty-two years Secretary of the Society. It wishes to place on record its appreciation of the great work which he did for the Society and of the untiring energy with which he was always ready to further its best interests. Its members feel that they have lost a good friend, and beg to offer their deep sympathy to his relations.'"

Honour for Mr. J. H. Maiden.—We are glad to learn that Mr. J. H. Maiden, Director of the Botanic Gardens, Sydney, and Government Botanist, has been awarded the Mueller Medal and Fund, in recognition of his botanical work. This medal was founded in memory of the late Baron von Mueller, Government Botanist of Victoria, and is awarded at each meeting of the Australasian Association for the Advancement of Science, which this year met at Wellington, New Zealand. It has been awarded for botany, zoology, geology and ethnology in the past.

Return of Mr. G. Forrest and Mr. F. Kingdon Ward.—After spending a lengthy period in the far East, on plant collecting expeditions in different districts, Mr. Forrest and Mr. Kingdon Ward made the journey to England on the same boat, and arrived safely at Southampton on March 10. Mr. Forrest at once proceeded to Edinburgh. Mr. Kingdon Ward remains in London for a while, and proposes to remain in England for a year before starting on his next expedition; he is engaged to lecture to the Royal Geographical Society in May or June, and it is hoped that he will give a lecture on the occasion of the annual meeting of the Horticultural Club, in May.

A New Horticultural Journal.—The latest country to establish a national horticultural society is Roumania, and the Society has started a journal (the first number of which has just reached us) called the *Revista Horticola*, or Horticultural Review. The paper, which is of small format, is neatly got up, and though printed in the main in the Roumanian tongue, has a few pages in French and German, so as to enable it to make the widest possible appeal in a multi-lingual country. The efforts of the Society to develop a love of horticulture in all its branches throughout Roumania are exceedingly praiseworthy, and will excite the sympathy and good wishes of all interested in gardening.

International Horticultural Congress at Amsterdam.—The Netherlands Horticultural and Botanic Society celebrates its jubilee in the coming autumn, and will take advantage of that auspicious event to hold an International Horticultural Congress at Amsterdam on September 17-23. At the same time, a great horticultural exhibition will be arranged by the Amsterdam section of the Society, from September 14-23, while the Netherlands Dahlia Society will add a special Dahlia show for the occasion. From the preliminary programme of the congress, we gather that there will be a reception and re-union on September 17, while the Congress will be opened on the morning of Tuesday, September 18, in the Great Hall of the University of Amsterdam, by Jonkheer G. F. van Tets, hon. President of the Netherlands Society. Immediately following the opening ceremony, Prof. Dr. Johanna Westerdyk, of Baarn, will give a lecture on Horticulture and Plant diseases, while Mr. Ernst H. Krelage, of Haarlem, will read a paper on the History of the Dahlia, and Mr. K. C. van Nes, of Apeldoorn, will open a discussion on the Care of the Beauties of Nature and Improvement of the Landscape Scenery in Connection with Town Planning. The afternoon session will be devoted to a discussion on the Problems of Stock and Scion, which will be opened by Prof. L. Daniel, of Rennes, Mr. R. G. Hatton, of East Malling, and Mr. O. Schindler, of Dresden-Pillnitz. This will be followed by a visit to the horticultural exhibition, and in the evening a reception will be given by the Burgomaster of the Town Council of Amsterdam. On Wednesday, September 19, visits will be paid to the nurseries at Aalsmeer and Haarlem. The Congress will meet again on Thursday morning, when Mr. F. J. Chittenden, Director of the Wisley Gardens, will give an account of the researches made in the Royal Horticultural Society's Gardens. Mr. E. Lierke, of Berlin, will discuss the Influence of Manuring on Fruits and Vegetables, while Prof. R. C. Punnett, of Cambridge, will discourse on the Hybridisation of the Sweet Pea, and Prof. Tschermak, Vienna, will deal with Primula Hybrids. After lunch, Mr. E. Furedi, Budapest, will discuss Horticultural Education in Hungary and the International Exchange of Pupils, while Mr. K. Dilling, Zutphen, will give a lecture on School Gardens, and Dr. F. Oledwelt, of Amsterdam, will speak on Allotment Gardens. In the evening, members of the Congress will be entertained at a dinner offered by the Netherlands Horticultural and Botanic Society. On Friday, September 21, there will be a trip from Amsterdam to Gouda, and thence by steamer to Boskoop, where the party will be received by members of the Boskoop section of the Society, and visit many of the nurseries at that famous town. The journey will then be continued to the Hague, where the members of the Congress will be received by the Minister of Home Affairs and Agriculture. For Saturday morning, September 22, arrangements have been made for an excursion to the harbour of Rotterdam in a steamer kindly placed at the disposal of the Congress by the Municipality of Rotterdam. In the afternoon the members will be welcomed at Westland by the Westland Association of Auction Societies, and will have an opportunity of inspecting a number of market gardens, where Grapes and vegetables are grown. On Sunday, September 23, members of the Congress will journey from the Hague to Utrecht and be conveyed by motor-cars to Zeist, where the Hon. President. Jonkheer G. F. van Tets, will entertain them at luncheon at his own home. After lunch the journey will be continued to Roosendaal, near Arnhem, where the Hon. Vice-President, Baron van Pallandt van Roosendaal, will receive the party. All these excursions, together with a dinner on September 20, will be offered to the foreign members of the Congress. Dr. M. J. Sirks, 62, Bergweg, Wageningen, Holland, Hon. Secretary of the Organising Committee, will supply a programme of the Congress to anyone applying for it. We understand that Her Majesty Queen Wilhelmina has graciously promised to be a patron of the International Horticultural Congress, and proposes to receive the members of the Congress at her palace at the Hague.

Trials of Flowers at Wisley.—The Royal Horticultural Society will carry out a trial of summer-flowering (outdoor) Chrysanthemums during the ensuing season. Three plants of each variety for trial should be sent so as to reach the gardens by April 30. The Society is also conducting trials of Wallflowers and Sweet Williams. and one packet of seed of each variety for trial should be sent in time to reach the gardens by April 30, and addressed to The Director, R.H.S. Gardens. Wisley, Ripley, Surrey.

British and Irish Members of the International Jury at Ghent Show.—Members of the International Jury to judge at the Ghent Quinquennial Exhibition, on April 13, have been chosen from Belgium, France, Denmark, Egypt, United States of America, Great Britain, Ireland, Holland, Italy, Luxembourg, Norway, Sweden and Switzerland. The British and Irish representatives who have accepted invitations include: The Right Hon. Lord Lambourne, Sir Jeremiah Colman, Sir George Holford, Sir F. W. Keeble, Sir F. W. Moore, Sir W. Thiselton Dyer, Rev. J. Crumbleholme, Prof. J. B. Farmer, Messrs. H. G. Alexander, G. Arluison, W. G. Baker, W. Barron, J. M. Bridgeford, J. S. Brunton, E. A. Bunyard, J. Cairns, J. Collier, Chas. H. Curtis, G. Cuthbert, C. Du Cann, W. R. Dykes, C. Englemann, R. F. Felton, A. Hill, J. H. Jolis, H. J. Jones, D. King, G. W. Leak, W. G. Lobjoit, Stuart H. Low, J. W. McHattie, C. M. Matthews, E. A. Merryweather, George Monro, W. R. Oldham, R. H. Page, W. H. Page, C. Harman Payne, Chas. E. Pearson, H. J. Pitt, L. R. Russell, F. K. Sander, J. E. Shill, J. Smith, A. Turner, P. C. M. Veitch, R. W. Wallace, W. E. Wallace, W. Watson, J. Weathers, Alfred W. White, R. White, J. Whitton and J. Gurney Wilson.

Mr. Arthur Bedford.—Mr. Arthur Bedford, gardener to Lionel de Rothschild, Esq., at Gunnersbury House, Acton, had the early advantage of a training under his father, Mr. F. Bedford, who for many years had charge of the famous and beautiful gardens at Straffan House, Kildare, where hardy plants were a special feature. Daffodils were naturalised on a large scale, vegetables and fruits admirably grown, and there were collections of Orchids, Ferns, stove and greenhouse plants, and trees and shrubs. After a thorough training at Straffan, Mr. A. Bedford went to Trinity College Botanic Gardens, where he served for four years under the late Mr. F. W. Burbidge, a gentleman to whom he readily acknowledges a great indebtedness. While at Trinity College Gardens he took advantage of his opportunities to visit the Glasnevin Botanic Gardens, where he became acquainted with a wide range of plants, and skilful methods of cultivation. Coming to England, he became a journeyman in the Duke of Northumberland's Gardens, at Syon House, Brentford, where he also remained for about four years, under the late Mr. George Wythes. He became greatly interested in the splendid collection of trees and shrubs at Syon House, and also extended his knowledge by means of frequent visits to Kew, which is across the river. From Syon House, Mr. Bedford entered service at Gunnersbury House as journeyman under Mr. James Hudson, of whose capabilities our readers are fully aware. Eventually, Mr. Bedford became foreman, and on the retirement of Mr. Hudson succeeded to the charge of gardens which were made famous by the late Mr. Leopold de Rothschild, and have become increasingly popular as a consequence of the interest which Mr. Lionel de Rothschild has taken in them. Mr. Bedford has shown in many ways that he is a clever gardener, and his long experience has been taken full advantage of by his generous employer in connection with his new and extensive garden at Exbury, near Southampton, where Rhododendrons are a special feature. Mr. Bedford served his fellow gardeners for many years as a member of the Committee of the United Horticultural Benefit and Provider Society, and on the occasion of the recen annual meeting of that body he was unan mously elected treasurer in succession to th late Mr. T. Winter. The high esteem in whic he is held has also been further acknowledge by his election to a seat on the Committee the Gardeners' Royal Benevolent Institution.

MR. ARTHUR BEDFORD.

National Institute of Agricultural Botany.—Farmers' Clubs, Chambers of Agriculture a other bodies, or individuals interested in agi culture, are invited to visit the headquarters the National Institute of Agricultural Botan Huntingdon-road, Cambridge, during the comi summer. They will be able to see trials of ne varieties of Wheat and Barley, in progress, the trial ground, and a collection of differe varieties of the various farm crops growing the field. This includes a very large numb of the cereals generally grown in Norther Europe. The buildings of the Institute w also be open to inspection; these include th Official Seed Testing Station for England an Wales, where testing of seeds for germinati and purity is always being carried out. It hoped that all who wish to take advantage this invitation will communicate with th Director of the Institute, Mr. Wilfred Parker, in order that suitable dates may arranged. The most interesting period for i specting the Institute is from June to Augus but visitors will be welcomed at any time.

Legacy to a Gardener.—Miss Jane Caroli Akinson, of Wylam, Northumberland, who die on December 18 last, bequeathed £100 to h gardener, Mr. T. Richardson.

A Nonagenarian Gardener.—The *Nor Western Daily Mail* publishes a portrait a particulars of Mr. William Shackley, garden in the employ of Sir Joseph Hutchinson, Ravenglass, Cumberland. Mr. Shackley, a though nearly 92 years of age, is still hale a hearty, and pursues his daily avocation. was born at Moorside, Gosforth, on Septemb 18, 1831. Mr. Shackley has completed fort years' continuous service at Newtown, the re dence of Sir Joseph Hutchinson. According the *North Western Daily Mail*, Mr. Shackle is a man of fine physique, wonderfully uprig and active. He is the father of seven childre of whom five are alive.

Partial Sterilisation of Soil.—According Messrs. Rivière and Pichard[*], arsenate of sod applied to the soil in minute quantities—abou 1/3rd oz. to ten square yards—favourably aff soil fertility, increasing yields of crops in som cases by so much as fifty per cent.

Local Horticultural Societies.—Lewisham an District Horticultural Society commenced las year with a balance in hand of £54, and close the year with a surplus of £93. The Societ has a membership of 991, most of whom a allotment holders cultivating some 57½ acre of land in the borough. Mr. T. W. Sander has been re-elected President, and Mr. J. R Heathfield re-appointed Secretary.—Chalfont St Peter and Gerrards Cross Horticultural Association, has decided to hold a show either in th third week in August or the first week i September; a sum of £50 is necessary fo prize money, and the Society desires to rais this amount before embarking on the show.—Southend Horticultural Society had a successfu year in 1922, and finished with a small balanc in hand. The exhibition was one of the bes in Essex, and it has been decided to hold a sho this year on the first Saturday in September.—Lichfield Floral and Horticultural Society, whic claims to be the second oldest society of it kind in England, having been established i 1816, has decided not to hold its annual exhibition this year.—As a result of losses incurre in three successive years, Walsall Flower Sho is to be discontinued, unless a guarantee fun sufficient to meet present and prospective liabilities can be raised. The loss on last year's sho was over £189, and wiped out completely lance in hand which the Society previously ssessed.—Bury and West Suffolk Horticulral Society is reviving its annual show, which ll be held on Thursday, July 12, in the Corn change, Bury-St.-Edmunds.—Rutland Hortiltural Society, which not only covers the whole the county of Rutland, but also nine rishes in Leicestershire that fall within the stal district of Oakham, is holding an exhition on Monday, August 6. At last year's hibition there were 1,100 entries, and the hedule this year contains two new open asses for Roses. These shows are held on ugust Bank Holiday, and apart from the rden exhibits, include a band, concert, and her entertainments, so that the exhibition is ways a great event locally.—Highgate Hortiltural Society had a successful year in 1922, e membership showing an increase, and the lverse balance of 1921 has been reduced to 3 15s. 6d. Sir Robert W. Cohen has been -elected President, Mr. G. Saunders, Hon. reasurer, and Mr. E. H. Chitty, Secretary. he date of the annual show has been provisionly fixed for July 21.

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[*] *Comptes rendus d. séances de l'Académie de Sciences*, CLXXIV., 7, February, 1922.

Appointment.—Mr. Geo. H. Copley, formerly orticultural Instructor, Leeds University, has en appointed Horticultural Superintendent to e Glamorgan County Council.

Degeneration of the Potato.—Professor M. ucomet, of Grignon, as his conclusion from a ng study of Leaf Curl of Potato, is opposed to e universally common practice of changing the ed. He states that Mons. Ch. Rivière has rown the same varieties of Potatos in the Jura r over twenty-five years, without renewing the ed, and the only result was a pathological eterioration varying with the season, but no hysiological deterioration. To prove that deeneration in the exact sense of the word does ot take place, it is advanced by Professor ucomet that when the Potato is planted further orth, it immediately regains its normal aracter. This is proved from the fact that hen Potatos are grown in North Africa as an rly crop, the seed Potatos from that crop deenerate and can no longer be used after the ird year. The same is the case in the Canary lands, where seed Potatos are imported from ngland.

Appointments for the Ensuing Week.—Monay, March 26.—Reading and District Gareners' Mutual Improvement Association's cture on "Weather Reports and Forecasts." uesday, March 27.—Royal Horticultural ociety's Committees meet (2 days). Wednesay, March 28.—Mitcham, Tooting and District orticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years go.—*Plants in Stays.* If garden staymaking ere discouraged garden skill would be prooted. It would in fact become indispensable. yacinths and Pelargoniums in a forcing ouse, unskilfully heated and constructed as ch places usually are, become so feeble as to e incapable of bearing their own weight; the emedy for this is better houses or better cultiation, not a pair of stays. In the open ground e Hyacinth and Pelargonium want nothing the sort: they are short, stiff and sturdy, d defy the storm which rushes over them e it observed, however, that gardeners are ot necessarily blameable for the bad condition their greenhouse plants; the blame may, and ery often does, lie with those who construct nd heat their forcing houses; in the eyes of hom it is only necessary to coddle a plant in rder to keep it in condition. The Scythians re said to have plunged their new-born hildren in the icy waters of their rivers, in rder to harden them. The example might be llowed with advantage in gardening, where, s we have formerly stated, the fire-king does uch more injury than the ice-king. Were this ut done the office of the staymaker would ertainly become a sinecure in gardens. Stays re used because plants are weakly; render lants robust, which is the great object of a ardener, and stays become needless. This quires no further argument. *Gard. Chron., arch* 18, 1848.

THE ALPINE GARDEN.

RANUNCULUS GLACIALIS.

THE Glacier Crowfoot (Ranunculus glacialis) (see Fig. 73) is one of the most widely spread species in the genus. In addition to the Alps of Europe, it is found distributed over the whole of the Arctic regions of Asia and North America. Seldom found growing lower than 6,500 feet elevation, it is, on the contrary, more usually found near the higher summits, reaching altitudes of over 13,000 feet in the Bernese Alps. The plants are usually found growing in rough, stony ground, often in the neighbourhood of glaciers and in the crevices of rocks, where they receive an abundance of moisture.

R. glacialis is not a lime-loving plant, but is usually found upon the silica or micaceous schist in the Alps. It has been recorded as growing on calcareous rocks, but probably the closely allied R. Seguieri has been mistaken for it. The latter is found on the limestone Alps, and is more easy to grow than the plant here illustrated. With such a wide range it is natural that R. glacialis should vary to a great extent. In the typical plant the lobes of the leaves are broad when fully developed, while in the extreme form, var. crithmifolius, the lobes are almost linear. The flowers also vary much in colour, from pure white to cream and rose suffused, especially on the underside of the petals, with purple. In an early stage some forms, like var. holosericeus are thickly covered with silky hairs, but these disappear to a great extent as the plant develops.

On the Gruben Alps, in the Valais, at an elevation of 9,000 feet, I remember seeing it some years ago growing in rough, stony ground. There, where the water from the melting snow was percolating through the loose, rocky debris, might be seen large quantities of this lovely plant in all stages of growth. In height the plants vary from 3 inches to 6 inches or more, for the flowers expand soon after they appear above the ground. The roots, stem and leaves are fleshy and succulent, while the leaves are deeply three-lobed with trifid segments. Of large size and full round form, the beautiful flowers are borne singly on long pedicels.

In this country it is difficult to accommodate and grow the plant successfully for any length of time. Moraine conditions suit it best, with a rough, stony compost, and with plenty of moisture during the time that it is growing. *W. I.*

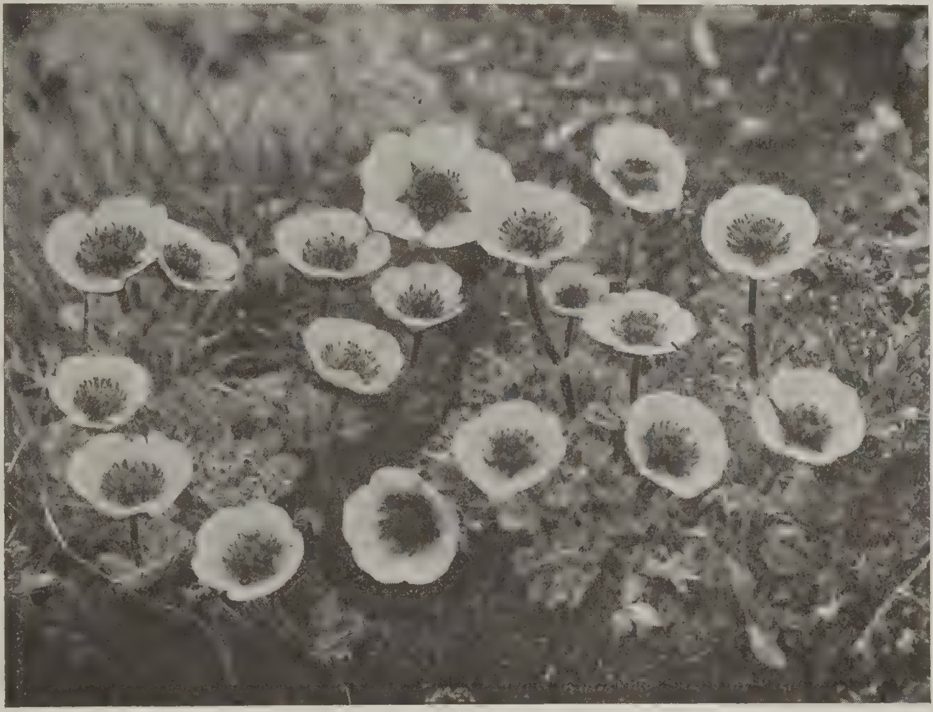

FIG. 73.—RANUNCULUS GLACIALIS.

VINCA HERBACEA.

THIS is one of the most distinct members of the genus, in that it is entirely herbaceous, the plant dying back to the base in autumn. Like the majority of the family, V. herbacea is a trailer, and it is even more prostrate than most. In spring it sends up slender shoots, which creep over soil or rock, putting forth, rather sparingly, pairs of fine, pointed leaves. These are followed by star-shaped, clear blue flowers, a succession of which is maintained throughout the greater part of summer.

This species appears to thrive in any position or soil enjoyed by others of its tribe, and, though it is said to root at the tips of its trailing branches, I have not yet been able to induce it to do so. As a small, single plant, V. herbacea may be disappointing, but, when allowed to cover several square feet of good, free soil, not too poor and dry, its mass of flowers will produce a remarkably attractive effect. The plant appears to be quite hardy, but where there is any doubt as to this a covering of ashes in winter should render it safe from frost. *A. T. J.*

THE BOG GARDEN.

LYSICHITUM CAMTSCHATCENSE.

LYSICHITUM CAMTSCHATCENSE is an Aroid sufficiently hardy for open-ground treatment in any garden.

It is a native of the northerly Pacific slope of America, and I have seen great patches of it in swampy ground in British Columbia, where, also, the less beautiful and unsavoury Symplocarpus, or Skunk Cabbage, flourishes abundantly.

L. camtschatcense is an herbaceous bog-plant, throwing up in the early spring large, fleshy, Arum-like leaves of a peculiar glaucous green to the height of about 1 foot. These are soon followed by the flowers, each of which gradually unfolds into a great cup-like spathe, which, though pale green at first, passes to a rich butter-yellow colour. Though best treated as a bog plant, this Arum will grow in a moist, rich border soil, provided plenty of water is supplied the roots during the season of active growth. There is said to be a white Japanese form which is similar in every other respect to the yellow type. *J.*

The Week's Work.

THE ORCHID HOUSES.

By G. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cyrtopodium.—The Cyrtopodiums are strong-growing plants which succeed in similar conditions, as regards heat and moisture, to those afforded Calanthes and Thunias, and a compost in which good fibrous loam is the principal material. When well-rooted and growing strongly they require frequent waterings with liquid manure. After making their growth they should be rested for a long period, giving them only sufficient water to prevent the plants shrivelling. These Orchids may be grown in an ordinary plant stove, in which they often give the best results, and when in flower they will contribute bright colour to the house.

Phaius.—When the members of this genus of Orchids have finished flowering, and their young growths are growing freely, any necessary repotting should be undertaken. They require a compost in which, provided it is porous, fibrous loam is the predominant material. Water should be applied with the greatest care to all Orchids grown in a retentive material.

Coelogyne.—It is not advisable to disturb Coelogynes unless they have outgrown their receptacles, or the compost has become sour and decomposed. In repotting them, the old soil and dead roots should be carefully removed, and the old, leafless, back pseudo-bulbs, excepting three or four behind each growing point, cut away. Pans are preferable to pots for these shallow rooting Orchids, and the receptacles should be well drained, as when well rooted and in full growth the plants require liberal supplies of water. A suitable compost consists of equal parts of Osmunda fibre, peat and Sphagnum moss, with a small quantity of good fibrous loam added. Unless the last is of the finest quality it is best left out, as it has a tendency to cause decay in the compost and make it sour. Some care is necessary in re-making the plants into specimens; the leads or growing points should be evenly arranged over the whole surface in such a manner that when the plant blooms again it is completely covered with its handsome white flowers. It may be necessary to use short pegs to hold the pseudo-bulbs in position until the plants are re-established in the compost. The flowering season of the various members extends over several weeks, and few plants make a more delightful show.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Grafting.—The operation of grafting may still be performed. Whichever method is used, clean cuts and perfect union should be effected. If clay is used for covering the grafted part, it should be watched constantly. To prevent it drying out, cover it with moss, which may be damped as occasion demands; the damp moss will also prevent the clay from cracking.

Strawberries.—The planting of young Strawberry plants that may have been deferred owing to rainy weather should now be completed without further delay. All unmulched plantations will need hoeing before the usual dry weather of spring sets in; all ground of a heavy nature will set very hard should drying winds follow the prolonged rains, and hoeing to keep the surface soil loose will be of the utmost importance in the fruit and kitchen garden. Ex-service men who were in Germany will remember the care taken by the Germans to have all their tools sharp, especially hoes and spades, a practice too often overlooked in English gardens. After hoeing, proceed with the mulching of the plants as manure becomes available.

Repairs to Walls.—From year to year the action of weather and constant nailing causes walls to become pitted with holes and sometimes in an unsafe condition. This state adds greatly to the gardener's troubles, in affording a congenial breeding ground for insect pests. Opportunities may still offer themselves to get a certain amount of wall space repointed, and old trees replaced by young and smaller ones. The blossom of certain fruit trees is developing fast, and every care must be taken against damage to the flowers by frosts. The use of smoke, or smudge fires as practised in America, to counteract frosts, does not find much favour in this country. The chief principle in their use is to delay the destructive action of the sun. The advent of morning fogs means salvation in this respect. In the use of protective material care must be taken that growing shoots do not become too tender by using an undue thickness of it.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Capsicums.—The many varieties of Capsicum are very useful for providing colour in the greenhouse during the autumn. The seed should be sown some time this month or the beginning of April, and germinated in a temperature of 55° to 60°. The plants are impatient of a check of any kind, and should not be allowed to become pot bound and starved in their earlier stages, but grown steadily on in a rich compost. As the plants are very subject to attacks of red spider, they require careful attention as regards watering and syringing at all times; they also suffer from attacks of Begonia mite and white fly, both of which must be guarded against.

Cyclamen.—Young plants of Cyclamen raised from seed sown last August that have passed the winter in thumb pots are growing freely and require shifting into sixty-sized pots. The compost should consist of rich mellow loam, to which may be added one-third its bulk of flaky leaf mould, with enough sand, or, better still, some old mortar rubble to render the whole porous. Lime in some form is essential for Cyclamen. The plants should be very carefully watered until the roots are well established in the new compost; for some time to come they should be kept fairly close and warm, with plenty of atmospheric moisture. As the season advances they should be grown in cooler conditions, with more air, until, later on, when they are in their flowering pots they may be stood in cold frames. At that stage the lights should be removed from the frames at nights in order that they may receive the benefit of dews, replacing the lights during the day, and shading the plants during bright weather. Cyclamen sometimes suffer from attacks of Begonia mite, which cripples the young leaves and also the flower buds.

Begonia Evansiana (syn. discolor).—This very old and nearly hardy Begonia is a useful subject for the greenhouse during late summer and autumn. Plants that have been stored in dry conditions during the winter should be started into growth, first shaking them out and potting them into 48-sized pots. As they need generous treatment, their final shift should be into 7-in. pots. When the plants are growing freely the roots need copious supplies of water; the plants should be afforded perfectly cool treatment at all times. This Begonia is easily increased by means of the buds it produces on the inflorescences at the end of the season.

Pandanus.—Pandanus Veitchii and P. Sanderi make fine large specimen plants for the stove; but small plants are most useful for decorative purposes generally. The plants may be readily increased at this season by means of the small side shoots, which should be inserted singly in small pots and plunged in a warm propagating case. Other species of Pandanus that are useful as small plants for decorative purposes are P. utilis, P. graminifolius, and P. Baptistii; the last is a very graceful plant with spineless leaves.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq. Carlton Park, Market Harborough, Leicestershire.

Cauliflowers.—Seedling Cauliflowers may no be pricked out into cold frames, placing the sufficiently far apart to enable them to be lifte with good balls of soil at the roots. Wat them copiously after planting them, and, aft a day or so, admit air freely, removing th lights entirely on warm days. Make anothe sowing, and again in a fortnight, to provid plants for a succession. Magnum Bonum an Purity are two excellent varieties for earl sowing, whilst Early Giant and Mammoth ar suitable sorts for successional cropping. Autum sown plants growing in frames should be full exposed to the weather when it is not too boiste ous and cold.

Celery.—The earliest Celery seedlings a ready for pricking out, about 2 inches apart, i boxes filled with sifted loam and leaf-mould i equal proportions. Make the soil fairly firm i the boxes to favour sturdy growth. Th plants, after transplanting, should be grown i a warm house or frame. Water the plants wit a fine rose can and damp them overhead dail Although Celery should never be allowed t become dry at the roots, at the same time i should not be overwatered, especially when in young state. Remove the plants to a col frame as the weather becomes more genial. Tw more sowings should be made during March t provide plants for a succession. The seedling should be raised in warmth and then hardene gradually. When large enough, prick the seedlings off into cold frames in rich soil, in whic they will make finer plants than in boxes at tha time of the year. Shade and keep them close fo a day or so if the weather is warm and bright but afterwards admit as much air as possible The trenches may be made before there is stress of other spring work, allowing a width o 4 feet between each double row, and 3 fee between each single row. Make the trenches 2 inches wide for the double rows and 15 inche wide for the single. Take the soil out a goo spit deep, forking up the ground between th rows before placing the excavated soil on it Take out the crumbs, and then put a good quantity of well-rotted manure in the bottom, an fork this in, afterwards placing the soil fro the banks back again, almost to the level of th trench. By the time the ground has settled i will be quite deep enough; indeed, there is n advantage in planting Celery too deeply. Whe the work is finished, lightly fork the banks ove again, as these may be utilised for the growin of Lettuces and other small crops.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq. Woolverstone Park Gardens, Ipswich.

Vines.—In the earliest house, where the grape were thinned some weeks since, the berries ar swelling rapidly, and in many cases are at th stoning stage. Liberal applications of liquid manure, varied with a suitable artificial manure will be needed. When the berries are over th stoning period an application of soot, whic should be well raked into the border and the watered in, will favourably influence the colouring of the berries and the general well-being o the Vine. The Vines having reached their ful leaf development, all unnecessary growth shoul be suppressed. An equable atmospheric moistur should be maintained by damping the bare surfaces in the house more or less according to the weather. Ventilate the Vinery carefully and do not allow the sun to raise the temperature too high before admitting a little air. No hard-and-fast rule can be laid down as to time of opening or closing the ventilators, as much depends on the aspect of the house and whether it is a lean-to or span-roofed structure. The temperature at night should range from 60 to 65°; on very cold nights it is not advisable to use an excessive amount of fire-heat, but rather allow the temperature to drop a little Shallow borders, which require watering frequently, should be mulched; in other cases this is not so necessary.

Thinning the Bunches.—Early and daily atten- n should be given to the thinning of the rries of later Grapes. To obtain shapely and nmetrical bunches suspend the top shoulders the bunch to the wires, or to small nails the sash bars, by means of thin strands of fia—by thus opening out the bunch it is not essary to thin the berries too freely on the ulders. If any signs of red spider are noted, nge the affected leaves carefully with weak py water. Houses containing Vines at the wering stage may be ventilated slightly, both y and night—unless the weather is very severe ıntil the setting of the berries is completed. e flowers should be carefully pollinated by arply tapping the rods two or three times dy. The capsules that adhere to the stigmas Muscat grapes should be removed by lightly wing the hand down the bunch, or by using eather brush.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

ardy Ferns.—Ferns are excellent subjects planting in wet nooks, shady places and ler trees where the boughs are not too low eading. Before planting dig the soil deeply, l if it is poor in quality or heavy in texture l plenty of leaf-mould and common peat, if ilable, while old decayed manure would be urther help. Though most Ferns prefer more less shade Lastreas and Polypodiums will with- nd a moderate amount of sunshine, while nunda regalis and Onoclea sensibilis delight moist places. The smooth, green foliage of lopendrium vulgare has not this winter suf- ed in any respect from the weather, and is sh and attractive. Established Fern groups uld be lightly forked over after being cleared weeds and decaying foliage. A mulch of f-mould will be cooling to the roots and vide them with nourishment.

ardy Annuals.—Just when hardy annuals uld be sown depends largely on two circum- nces—the state of the soil, which varies atly in different localities, and the purpose growing the plants. As a general rule, the t time is from the third or fourth week in rch to the first week of June, after which e, especially in cold districts, quick growing ds of annuals only should be sown, otherwise y may not arrive at the flowering stage. here these flowers are intended to form part the floral display for the summer, early sow- is advisable in order that the plants may ome quickly established and commence to om at an early date. They may be sown in vs, in circles or broadcast, as may be favoured thought convenient. The first method is the iest for keeping the rows clear of weeds. ile the formal outline of a straight row dis- pears as soon as the seedlings develop into shy specimens. Experience has taught me at the finest results with hardy annuals are m those sown at the end of the summer or early autumn and allowed to stand the nter. Not only do these plants grow bigger d stronger, but they flower much sooner. This stem of sowing is, however, seldom possible, it would mean lifting out other plants before eir display was over. To obviate this diffi- lty the autumn sowing should be made else- ere and the seedlings transplanted early in e spring. If required for supplying cut oms, the plants should be grown in special ds to obviate depleting the beds or borders ranged for effect.

Evergreens.—With most of the winter now hind us, the pruning and planting of ever- eens may receive attention. Yew and Holly ould be pruned or planted last on account of eir commencing to grow late; the planting of ese two evergreens should be deferred for other week or so. Some growers wait until e beginning of May to plant Holly; it may, wever, be successfully planted earlier. In uning ordinary shrubs do not shear them osely; close shearing should be only prac- sed when a hedge is intended to form a flat ckground, or to preserve a straight line.

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON PRAEVERNUM.

The name of this species, which means "before spring," has been aptly given by Mr. J. Hutchinson to one of the best early-flowering Rhododendrons of recent introduction from China. The plant is found in the same localities of Western Hupeh as R. sutchuenense, the seedlings of No. 1232 Wilson-Veitch (1900) and No. 509 Wilson-Sargeant including both species.

Compared with R. sutchuenense, R. praevernum is more compact in habit, the typical form being low and spreading, at least for some years. The oblanceolate leaves are 4 to 7 inches long, 1 to 2 inches wide, gradually tapering at the base, quite smooth beneath. The flowers are bell-shaped, 2 inches long and wide, white or pink tinted with a distinct wine-red blotch.

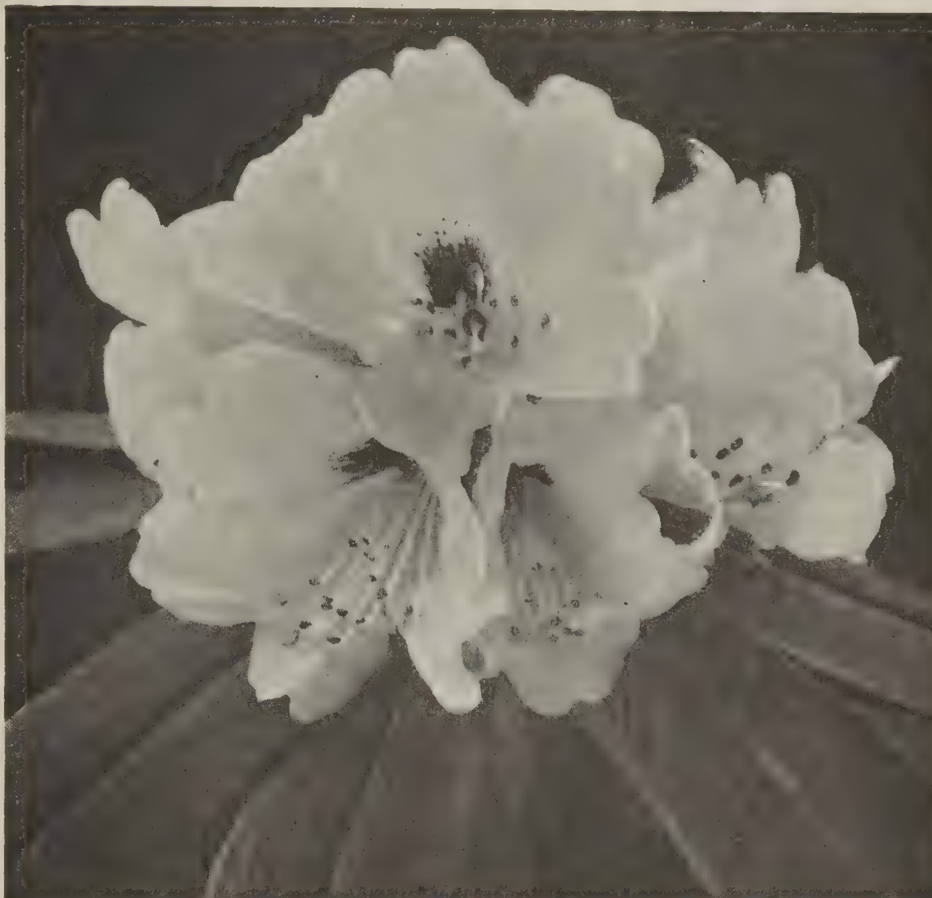

FIG. 74.—RHODODENDRON PRAEVERNUM.

While as garden plants the two are widely different, Mr. Wilson has maintained from the first that they are simply extreme forms of one species, his opinion being supported by numerous enthusiastic Rhododendron cultivators. Now that each year more of the seedling plants are flowering, forms intermediate between the two are constantly cropping up. A plant with the habit of R. sutchuenense, but with the blotch of R. praevernum, which first attracted attention in Mr. Gerald Loder's garden, has been given the distinguishing name of R. sutchuenense var. Geraldii. Another distinct form has the upright habit of R. sutchuenense with R. praevernum leaves, while another has all the characters of R. sutchuenense except the base of the leaf, which is acutely tapering as in R. praevernum

We have not far to seek for a similar wide variation in a species of Rhododendron, the many forms of the Himalayan R. arboreum being even more distinct. The development of the plants raised from home-ripened seeds will be watched with more than average interest. *A. Osborn, Kew.*

HARDY FLOWER BORDER.

LINUM NARBONENSE SIX HILLS VARIETY.

Some few years ago a friend sent me from the West of Ireland a plant of Linum narbonense of a very special form which he called Peto's variety. He told me that it was a particularly fine thing, and as I knew him to be a good judge of hardy plants who knew what he was talking about, I made no little fuss of my new acquisition and planted it out on a sunny trial bed of good loam. The plant grew vigorously and soon made a fine bush eighteen inches high and a couple of feet across. It formed a dense forest of strong, wiry, erect stems, branched and clothed with Heath-like leaves, and in due course it covered itself with a cloud of splendid blue flowers. I had long grown ordinary Linum narbonense, and greatly admired it as the handsomest and most reliable blue Flax of my acquaintance, but Peto's variety quite put me out of conceit with the ordinary form. The plant was very much more vigorous, and its flowers much larger; great funnel-shaped trumpets of thick satin texture and deepest, richest sapphire-blue. The plant increased with delightful freedom, and stood out all the winter in the flower-border with imperturbable hardihood.

Then a curious thing happened. A Mr. Peto came to me at a Chelsea Show and asked me why I called this Linum "Peto's Variety." He knew nothing about it and had nothing to do with its origin. I changed the name from "Peto's Variety" to "Six Hills Variety." And now, having re-baptised the plant, it occurs to me that perhaps I really have done a worse thing. May there not after all be some other Mr. Peto after whom it had been rightfully named? If I have done an injustice I am truly sorry. I have never been able to trace the origin of my plant beyond its Irish source, and if anyone can enlighten me I shall be very pleased. *Clarence Elliott, Stevenage.*

ORCHID NOTES AND GLEANINGS.

ODONTIODA WALDA.

R. GERRISH, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell), sends a flower of this superb cross between Odontioda Coronation and Odm. Louise. It equals in size and shape the best form of Odontoglossum crispum, but the flower is ruby purple with an underlying shade of orange and with a slight white tracery of the spotting in Oda. Coronation. The broad lip is light violet with ruby spotting around the prominent yellow crest.

Odontioda Marietta (Oda. Madeline × Odm. Dusky Monarch) is also sent by Mr. Gerrish. The colour is reddish Tyrian purple, the margins having thin, white markings and the tips of the petals and front and edges of the side lobes of the lip are also tipped with blush white. The crest of the lip is very strongly developed and coloured bright yellow. It is interesting to note that in this and some other Odontioda crosses the crest of raised lines at the base of the lip is more prominent than in any of the species from which they have originated.

LAELIO-CATTLEYA SAFFRON.

A BRIGHTLY coloured, two-flowered inflorescence of this showy new cross between L.-C. Cupid (C. Mossiae × L. Latona) and L.-C. Smilax (C. Enid × L.-C. Charlesworthii) is sent by Pantia Ralli, Esq., Ashstead Park (Orchid-grower, Mr. Farnes). In colour and general features the variety adheres to Messrs. Charlesworth's favourite L.-C. Charlesworthii of 1900, of which it may be said to be an improvement. The species used in the basal ancestors were Laelia cinnabarina twice, Laelia purpurata and Cattleya Dowiana. At every step of the development L. cinnabarina has asserted itself in colour and form, although in the present instance the flowers more nearly approach the Cattleyas. The sepals and petals are light chrome yellow with a saffron yellow shade, the petals being the darker in tint. The lip, which is crimped at the edge, is ruby red, the base being yellow with orange-coloured lines.

NEW HYBRIDS

(Continued from February 3, 1923, page 62).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Hannibal var. Helen	B.-C. Digbyano-Warneri × C. Fabia	G. W. Bird, Esq.
Brasso-Cattleya H. Hunter	B.-C. Digbyano-Mossiae Queen Alexandra × C. Suzanne H. de Crom	Sanders and Stuart Low.
Brasso-Cattleya Primrose Queen	B.-C. Mrs. J. Leemann × C. Mag. Raphael alba	Sanders.
Brasso-Laelio-Cattleya Asmodia	B.-L.-C. Agamedes × B.-C. Mrs. J. Leemann	Charlesworth.
Brasso-Laelio-Cattleya Aurifera	L.-C. Creusa × B.-C. Mrs. J. Leemann	Charlesworth.
Brasso-Laelio-Cattleya Mossmaniana	B.-C. Mrs. J. Leemann × L.-C. Firminii	J. P. Mossman, Esq., U.S.A.
Brasso-Laelio-Cattleya Salmono	B.-C. Mrs. J. Leemann × L.-C. warnhamensis	J. P. Mossman, Esq., U.S.A.
Brasso-Laelio-Cattleya Sunset	B.-C. Thorntonii × L.-C. Luminosa	Sanders.
Brasso-Laelio-Cattleya Thais	C. Trianae × B.-L.-C. Joan	McBean.
Cattleya Delphin	Tityus × Empress Frederick	McBean.
Cattleya Mossmaniana	Trianae atro-purpurea × Alfred Dimmock	J. P. Mossman, Esq., U.S.A.
Cattleya Oratani	Princess Royal × Enid	Clement Moore, Esq., U.S.A.
Cattleya Phœbe Snow	Luddemanniana × Cappei alba	Clement Moore, Esq., U.S.A.
Cattleya Titrianae	Trianae × Tityus	McBean.
Cymbidium Adonis	Coningsbyanum × Pauwelsii	Sanders.
Cymbidium Auriga	Alexanderi × Excelsior	McBean.
Cymbidium Bittern	Gottianum × Lowio-grandiflorum	Sir Geo. Holford.
Cymbidium Bunting	insigne × Garnet	Sir Geo. Holford.
Cymbidium Bustard	Garnet × Lowio-grandiflorum	Sir Geo. Holford.
Cymbidium Cetus	Alexanderi roseum × Parishii Sanderae	McBean.
Cymbidium Goldflake var. Arthur	J. Davis var. glebelandense × rosefieldense	Hon. R. James.
Cymbidium Kingfisher	Gottianum × Butterfly	Sir Geo. Holford.
Cymbidium Lapwing	Butterfly × Miranda	Sir Geo. Holford.
Cymbidium Muriel	giganteum × Alexanderi	Cowan.
Cymbidium Radiant	l'Ansoni Cravenianum × erythrostylum	Armstrong & Brown.
Cypripedium Admiral	G. F. Moore × Beryl	S. Gratrix, Esq.
Cypripedium Bolaeus	Actaeus × Boltonii	P. Smith, Esq.
Cypripedium Chloris	Mrs. Jenkins × Lord Wolmer	Flory & Black.
Cypripedium General Degoutte	Earl Tankerville × Mrs. F. W. Ashton	A. Hanmer, Esq.
Cypripedium Horus	insigne Harefield Hall × Memoria Jerninghamiae.	
Cypripedium Hypericum	Glorita × Majesticum	Flory & Black.
Cypripedium Moonstar	Boltonii × niveum	Duke of Marlborough.
Cypripedium Mrs. Giles	Lady Dillon × aureum	A. Hanmer, Esq.
Cypripedium Nesta II.	Eurybiades × Lord Wolmer	E. D. Bostock, Esq.
Cypripedium Phantasy	Glorita × Actaeus Bianca	Flory & Black.
Cypripedium Pioneer var. Alpha	Zoe × Desdemona	P. Smith Esq.
Cypripedium Rowland	Vandyke hybrid × Peter	H. T. Pitt, Esq.
Cypripedium Scarab	Thompsonii × Mrs. Carey Batten	Mrs. Bruce and Miss Wrigley
Cypripedium Seagull	Gulliver × Earl Tankerville	Sir Geo. Holford.
Cypripedium Senator	Gladiator × Lord Wolmer var. Duke of Marlborough	Flory & Black.
Cypripedium Trentino	Cavalier × Leeanum	B. J. Becton, Esq.
Cypripedium Zoot	Waterloo × Earl Tankerville	Mrs. Bruce and Miss Wrigley
Laelia Coral	De Geestiana × pumila alba	McBean.
Laelio-Cattleya Aethiopian	bletchleyensis × Aphrodite	Sanders.
Laelio-Cattleya Luman	L.-C. Luminosa × L. anceps Schröderana	McBean.
Laelio-Cattleya Lumissima	L.-C. Luminosa × C. Luddemanniana	J. P. Mossman, Esq., U.S.A.
Laelio-Cattleya Minima	C. Mendelii × L.-C. Ophir	Mrs. Bruce and Miss Wrigley
Laelio-Cattleya Mossmaniana	L.-C. Orion × C. Dowiana	J. P. Mossman, Esq., U.S.A.
Laelio-Cattleya Raven	Dominiana × Black Prince	Sanders.
Laelio-Cattleya Rubella	Nella × St. Gothard	Stuart Low.
Laelio-Cattleya Saffron	L.-C. Smilax × L.-C. Cupid	Pantia Ralli, Esq.
Laelio-Cattleya Triaureole	L.-C. Aureole × C. Trianae alba	J. P. Mossman, Esq., U.S.A.
Laelio-Cattleya Yellow Dwarf	L.-C. Oriens × L. Cowanii	Mrs. Bruce and Miss Wrigley
Odontioda Adela	Odm. percultum × Oda. Meteor	Charlesworth.
Odontioda Angelo	Odm. Fascinator × Oda. Queen Mary	C. J. Lucas, Esq.
Odontioda Beta	Odm. Midnight × Oda. Joan	McBean.
Odontioda Cordor	Oda. Coronation × Odm. Doris	S. Gratrix, Esq. (Armstrong, 1922.)
Odontioda Cornelia	Oda. Diana × Oda. Madeline	Charlesworth.
Odontioda Delta	Oda. Brunette × Odm. Lawrenceanum	McBean.
Odontioda Marietta	Oda. Madeline × Odm. Dusky Monarch	R. Gerrish, Esq.
Odontioda Naomi	Oda. Vuylstekeae × Odm. Nathaniel	Charlesworth.
Odontioda Red Dragon	Oda. Mars × Odm. Clovis	C. J. Lucas, Esq.
Odontioda Vedas	Oda. Bradshawiae × Oda. Felicia	Charlesworth.
Odontioda Walda	Oda. Coronation × Odm. Louise	R. Gerrish, Esq.
Odontioda Zygus	Oda. Zephyr × Odm. ardentissimum	C. J. Lucas, Esq.
Odontoglossum Aquila	ardentissimum × L'Empereur	McBean.
Odontoglossum Strathmore	Apollo × Hylandianum	Armstrong & Brown
Odontonia Baroness Schröder	M. Bleuana × Odm. The Czar	Charlesworth.
Potinara Lowii	Lowiara insignis × L.-C. Luminosa	Stuart Low.
Sophro-Cattleya Jean	C. Iris × S.-C. Thwaitesii	R. G. Thwaites, Esq.
Sophro-Cattleya Octavia	C. Octave Doin × S.-C. Doris	Mrs. Bruce and Miss Wrigley
Sophro-Cattleya Rupert	C. Maggie Raphael × S.-C. Roupelliana	R. G. Thwaites, Esq.
Sophro-Laelio-Cattleya Flammea	S.-L.-C. Eros × C. Lawrenceana	Flory & Black.
Vuylstekeara Fascination	Oda. Feronia × M. Bleuana	Charlesworth.
Vuylstekeara Rutherford's Sylvia	M. Bleuana × Oda. Joan	Sir J. Rutherford.
Wilsonara Wendy	Odm. Lambeauianum × Oncidioda Cooksoniae	Charlesworth.

NOTICES OF BOOKS.

Influence of Electricity on Mutation in Plants

A NEW and wide field of experiment and stu is opened up by the publication of a work* Mr. Alberto Pirovano, of Vaprio d'Adda, Mila Italy. The author is well known in Italy as skilful raiser of new varieties of Grapevines.

The book includes a long series of expe ments proving, evidently, that it is possible obtain important mutations in plants, and a to alter the laws of heredity by means gonolysis of the pollen. The author ca gonolysis the result of the minute alterations the genital plasma produced when it is expos to variations of the magnetic field. As agen of gonolysis he has made use of elect magnetism, X rays, radio-active emanations, a ultra violet rays.

The author has made experiments only on t pollen, which is easier to handle than the ovul but it is probable that not less important resul will be obtained by experiments on the latter.

To give an idea of the importance of the mut tions produced by this means, it may be cit that dioecism and hermaphroditism are induc in the small Gourd of Italy (Cucurbita Pe cucurbotelle).

The author has opened up a new branch genetical science; the electro-genetic. *D Attilio Ragioneri, Castello, Italy.*

Seed Raising.

THE third edition of Mr. Ernest Benary handbook† on the raising of garden plants fro seed bears evidence of full and careful revisio and provides the gardener who reads Germa with a valuable and concise summary of th treatment which must be accorded to gard seeds in order to assure good growth of th seedlings. The introductory chapters deal wi the choice of soil for seed raising, the maki of hot-beds, the treatment and transplantati of seedlings. In the main body of the book a described briefly, yet with sufficient detail, th best modes of sowing vegetable seeds, flow seeds, both for cultivation in the open grou and in pots, and tree seeds. For vegetable useful tables are provided, giving number seeds per gram weight, time of germin tion, and length of time during which see remain viable (p. 133), and for each kind flower the important points to be observed in i cultivation are not only stated in the text, b also summarised in convenient tables.

Against each plant listed in the table recorded by convenient conventional signs i duration, whether bulbous, rhyzomatous tuberous; if it be a climber or a shrubby plan whether its flowers are sought by bees, the tim for seed sowing in the open or in cold fran or hot-bed; period of germination, time flowering, and how best used, whether in be or groups, singly against walls, in pots, et Hence by consulting these tables the read may find quickly just that sort of informatio which he may require when sowing seeds varieties, the habits of which he ignores.

Guide to Cambridge Botanic Garden.

AN interesting guide to the University Botan Garden of Cambridge has been compiled by th director of the garden, Mr. Humphrey Gilber Carter.‡ The work contains a diagrammatic pl of the garden, while the text comprises lists plants grown in the gardens, classified in the Natural Orders. Several of the subjects me tioned are illustrated in black and white, and th illustrations, as well as the letterpress, a printed excellently well. The Botanic Garden Cambridge dates from 1761, when Dr. Walke Vice-Master of Trinity College, gave the esta of the Monastery of the Austin Friars of th Parish of St. Edward's for the purpose.

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* *La mutazione elettrica delle specie botaniche e disciplina della credita nella ibridazione*, by Mr. Pirovano.—U. Hoepli, ed., Milano, 1922.

† *Die Anzucht der Pflanzen ans Samsen in Garte bau*, by Ernest Benary. Paul Parey, Berlin, 19 24,000 marks.

‡ *Guide to the University Botanic Garden, Ca bridge.* By Humphrey Gilbert-Carter. Cambridg University Press. Price 3s. 6d. net.

RUE.

Rue is a plant for which few people have y affection. The greenish yellow flowers do t appeal to everybody, and the odour, sana- e as it was supposed to be in bygone times, repulsive to most. Yet it has its good ints. There is even a beauty in its flowers, d those who have watched them on a sunny renoon have not only found beauty but scination. What a wonderful adaptation is at which induces one stamen after another to e from its flat position and, ascending grace- lly in a perfect curve, place its anther on special stigma? Add to this its blue-green liage, and I am sure a case would be made t for giving it a place in the hardy border. have always raised Rue by means of seed, it we are assured by old writers that the ant would not thrive unless it were filched om the garden of a neighbour, and then it ould refuse to grow unless planted in the oximity of a Fig tree, and even then, were member of the female sex allowed to ap- oach it when in flower, it would forthwith cay! Evidently Rue has lost these fitful iosyncrasies, and now will thrive anywhere, erely requiring an annual trimming in spring keep it shapely.

Though Rue is a very old name for this ant, in early books of all kinds it is almost ways called Herb Grace, Herb of Grace, racious Herb, with other equivalents. arious reasons have been advanced to show w it came by these names, the one which ems to be most appropriate being that it as employed in exorcising evil spirits. An d French writer in this connection remarks: *La semence de rue est faicte comme une croix, c'est paraventure la cause qu'elle a tant de rtu contre les possédes et que l'Eglise s'en rt en les exorcisant.*" Another reason pro- sed was its supposed power of bestowing grace those who partook of it. An old English umorous verselet refers to this:—

If a man have light fingers that he cannot
charme,
Which will pick men's pockets and do such-
like harme,
He must be let blood, in a scarfe wear his
arme,
And drink the herbe grace in a posset luke
warme."

Many were the diseases Rue was supposed cure, in this being like other herbs auseous to the taste; epidemics of a deadly ature, such as the plague and jail fevers, eing especially noted. A very remarkable way f using it in these circumstances was to stuff e nostrils with leafy sprigs which it would ppear were sentinels that allowed no infec- on to pass; this external application was sup- lemented by drinking plague water, of which ue was a chief ingredient. Rue was also rewed about apartments, and we read of Rue- ater being sprinkled at the back doors of ondon houses while that City was visited by e plague. It was usual also to strew court oms with the herb at all times, jail fever ever being absent from among prisoners.

Milton's oft-quoted lines have led to the ssumption that Rue and Eyebright were used s remedies for myopia, but a reference to ncient medical prescriptions shows that Fennel as the usual herb that was conjoined with ue in the composition of eye-salves. Rue lone, as Thomas Hill assures his sixteenth entury readers, was of itself a sufficient emedy in impaired vision. He remarks how Herbe Grace is a peculiar triacle for the oore," and that "curious painters and raners doe often eate of this herbe with their eate for the clearing and amending of their ght." A sinister use of Rue in sickness was s assumed property of discovering whether r no the sick would recover. For this purpose plaister of the herb was applied "somewhat icke to the crowne of the head (when), if hou sneezest within sixe houres after thou halt escape, or else not." So much depended n a sneeze!

Mrs. Bardfield, in her book on herbs, tells ow Rue is still used in rural medicine, and even eaten sandwich-wise, like mustard and ress. *R. P. Brotherston.*

TREES AND SHRUBS.

DECAISNEA FARGESII.

This interesting shrub from Western China is a handsome garden plant by reason of its large, pinnate leaves, often 2 ft. to 3 ft. long. Although it suffers from late spring frosts in all except the most favoured gardens and districts, Decaisnea Fargesii is hardy, and, when established, usually flowers annually, the long, loose, drooping panicles of yellow-green flowers appearing at the end of the young growths. In addition to its fine foliage, interesting flowers and purplish brown stems Decaisnea Fargesii possesses a further attraction in its fruits (Fig. 75). These are blue pods, torulose, sometimes slightly curved; and when laid on their sides they resemble big, fat, blue caterpillars. At the Royal Horticultural Society's exhibition at Holland Park Hall in the autumn of 1922, Mr. G. Reuthe exhibited several clusters of these attractive blue fruits.

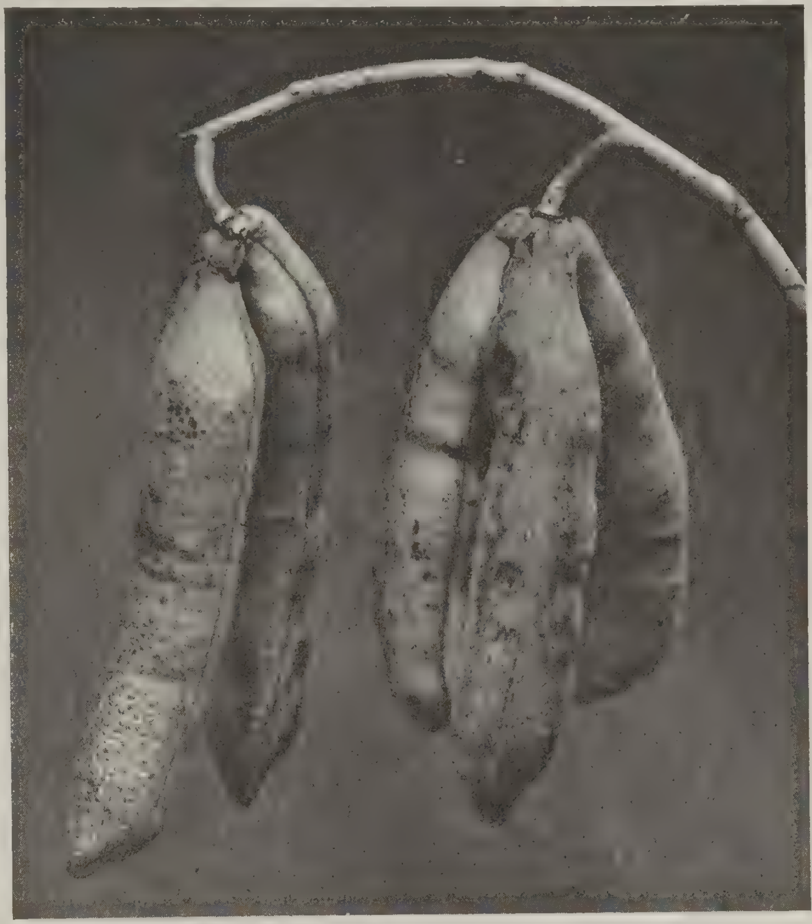

FIG. 75.—FRUITS OF DECAISNEA FARGESII.

THE KENTUCKY COFFEE TREE.

When the male tree of this plant flowered at Kayhough, Kew, last year, as recorded in the *Gard. Chron.*, Vol. LXXII., third series, p. 49, I wondered whether the tree had ever fruited in this country. Loudon does not say it has, so far as I can see. In his day the tree was generally propagated by imported seeds, as it is at the present time. He states, however, that it would grow freely from cuttings of the roots, if care were taken to keep the proper end upright. I find it recorded in the *Journal* of the Royal Horticultural Society that Mr. James Vert sent from Saffron Walden Gardens fruits of this tree to a meeting of the Fruit and Vegetable Committee, on October 25, 1898 "They were like rough-skinned Walnuts to look at, and to smell, and the juice stained in a similar way." The tree is certainly one of strange contrasts, with its tall trunk, stout twigs, large pods and seeds, and small, regular, inconspicuous flowers. Some imported seeds I have are globular, slightly compressed, black, and measure 13-20 millimetres in diameter *J. F.*

ELAEAGNUS ARGENTEA.

A native of the Canadian prairies and the central States of North America, this attractive little shrub is commonly known as the Silver Berry or Wolf Willow. It is one of the most silvery shrubs known to our gardens, for not only are the rather narrow, pointed leaves nearly as silvery as a sheet of aluminium, but the berries which follow the sweetly-scented, Daphne-like flowers are covered with a grey-white meal. Plants recently sent over from Saskatchewan are even more silvery than those obtained from an Irish nursery, which show a trace of the brown tomentum common to so many members of the genus Elaeagnus. The height of the shrub varies a good deal, the more northerly forms not usually rising up to more than about 4 ft. In its native soil E. argentea spreads a good deal by suckers, but it seems to lose this habit almost entirely in cultivation. *A. T. J.*

RHODORA CANADENSIS.

This is such an easily grown, charming little shrub that one wonders why it is not more often seen. It is adaptable for the rock garden (being no more than 2 ft. to 4 ft. in height), the front of the border or open woodland, and all it asks is any cool loam that does not dry out too quickly in summer. Peat and leaf-mould it enjoys, but these are not always essential. We have grown R. canadensis for many years and not once has it failed to produce a mass of blossom in early spring. It generally flowers just as Rhododendron praecox, R. ciliatum, and other early kinds are going off and, being deciduous, the leaves do not appear until the blossoming is over. The flowers, which are borne in clusters at the tips of the twigs, are a vivid rose-purple with long, silvery stamens which protrude with an upward tilt like those of a Honeysuckle. Another name for Rhodora canadensis is Rhododendron canadensis. *A. T. J.*

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. XI.—The Kari River.

A LONG descent by a peculiarly vile path (which for some distance was simply the bed of the torrent) brought us at dark to a wretched village; but not before a thunderstorm had burst over us.

Next morning, continuing the descent, we reached the Kari river, where it turns east to join the Yangtze, which is quite close.

The Kari river is a fairly big and powerful stream, flowing more or less south, parallel to the Yangtze. Nearly all its water is derived from the Mekong divide, to the west; and during the four days' march we followed it up, we crossed a number of big tributaries which enter the right bank. At first we found ourselves in a very dry region, with little vegetation on the rocks. Conspicuous were a Pedicularis, with spikes of crimson-pink flowers; an erect Androsace, with small white flowers; and a Saxifraga bearing a large candelabra of speckled yellow flowers. The rosette foliage of the two last and the fleshy foliage of some yellow and red Sedums indicated that we were approaching the arid gorges of the great rivers; indeed, all of the above are found on the upper Mekong. Other rosette plants were Didissandra lanuginosa and Selaginella sp. There were also scrubby bushes of Bauhinia, Sophora, Desmodium, Indigofera, Buddleia, Wikstroemia, Jasminum, Cotoneaster, Ceratostigma, etc., scattered over the stony slopes. Higher up were Pine trees.

On August 2 we passed through a series of limestone gorges, where trees descended to the water's edge. A splendid Euonymus, laden with pink capsules dangling on long stalks, was common here. Here and there the tawny, black-spotted Lily, already referred to, was seen; also a big, clumsy-looking, pink-flowered Androsace, which was not A. spinulifera, though not very dissimilar to it in habit. In a bog I noticed Loosestrife and a tall Hypericum; and on the cliffs species of Arisaema. One could not wax very enthusiastic over this sort of thing, and I turned my attention to a caterpillar. This proved far more amusing. He was feeding on a large, coarse-leafed plant, with fat spikes of pink flowers, and, later, Blackberry-like fruits, common round villages in Yunnan—I do not know its name. There were many of them (the caterpillars), white in colour, a nasty corpse-like white, and thus very conspicuous on the dark green leaves; for they took no trouble to conceal themselves. No bird in the neighbourhood could fail to see such an object, especially if he were hungry. How, then, did the larva continue to exist, in the face of the enemy, so to speak? I investigated, and found the answer in chemical warfare. Along the back of the caterpillar were arranged two rows of blunt papillae like the tentacles of a starfish. On picking up the creature drops of fluid of a pure golden colour began to exude, not from the papillae, but from a row of tiny portholes along either side. The papillae were merely the triggers which fired the broadside. You pressed the button, the caterpillar did the rest. If the pressure was kept up, the creature rapidly became beaded all over with golden drops, which swelled and coalesced until he was enveloped in a bath of golden syrup. This liquid had a slightly disagreeable smell, but faintly perceptible by the human, with his inadequate olfactory outfit; but a drop placed on the tongue gave a burning sensation something like Pepper, and left a bitter taste behind.

Now it is easy to state that no sensible bird, however hungry, would eat a nasty morsel like that. But he must be trained first, or clearly warned, that it *is* nasty. If the caterpillar does not begin to throw acids about till he is touched; and if the first thing that touches him is a large and horny beak, it is certain that he will be hurt before the bird, surprised with a drop of vitriol in its eye, can release him. Once a bird has been caught by such a trick he will, no doubt, he wiser in future; but unless he can convey a warning to his friends, other birds will be caught napping in the same way to the discomfiture of both bird and larva—especially larva. It would be poor consolation to the latter to reflect from solitary confinement in the bird's crop that the bird was going to be sick.

I therefore performed other experiments to see whether the caterpillar could be induced to give an exhibition in chemistry without contact—to exude warning drops on the approach of an enemy. The result was what I had anticipated. On blowing at the caterpillar, and still more on stimulating him with a burning glass, he squirted jets of pungent golden fluid to a distance of as much as 6 inches!

Now it requires no deep mensuration to calculate that any finch, wren, tit, flycatcher, robin —almost any bird, in fact, with a beak shorter than a toucan or a pelican (neither of which is found in Yunnan, by the way)—might receive a contribution in the eye. True, the caterpillar's aim is erratic; but with the entire battery in action, the chances of a "bird's-eye" are considerable. The mere stimulus provided by the flutter of a bird's wing may set gigantic chemical reactions in motion. The merest touch is sufficient—and the caterpillar was unable to distinguish between my finger and a twig. So much for sighting shots, as a warning to keep off. But the caterpillar is clever too. He must be able to distinguish stimuli to some extent; otherwise any chance breeze, any contact, as shown by the above experiments, might open the valves and flood the creature with vitriol, thus exhausting supplies unnecessarily.

The Darwinian school will have some difficulty in accounting for a performance such as this on any theory of natural selection. For any variety of caterpillar, which, to begin with, gave rise to an infinitesimal quantity of acid would have no more chance of survival than one which produced none at all. But we may go further than that. A caterpillar which produces even a drop of complex acid—probably a waste product in the first instance—differs fundamentally from one which produces none at all. An elaborate chemical reaction takes place, or it does not. It is impossible to pass from nothing to the manufacture of complex molecules by infinitesimal gradations. The step is a mutation, a leap of some sort.

We must now try to visualise the steps from a simple harmless caterpillar to a belligerent larva such as I have described. The golden syrup is at first no doubt a waste product. It disagrees with birds who eat the caterpillar; and the caterpillar ruefully reflects, just before he dies, that the bird may wish it had not eaten him. It is not sufficient to be objectionable; you must circulate the knowledge that you *are* objectionable. The next step, therefore, was to utilise this waste product in such a way that the bird might know it was there before any damage was done, and learn to let the caterpillar alone. In other words, the waste product must be visibly exuded, which implies storage and release at the right moment. We now find our larva beaded with acid in order to prevent attack, rather than perish while making the enemy sick. Another little jump takes us to a stage where so much liquid is produced and stored that it can be squirted out of ducts provided for the purpose with considerable violence. And, finally, hair triggers are added to fire the broadside at the moment of danger.

This sketch may be slightly fanciful, and we do not know *how* the leaps are taken; but it would appear that the course of events is not altogether unlike that suggested.

On August 4 we left the Kari River to cross the Kari Pass, turning up a wide, stony valley; the Kari River was still a big stream flowing from the north. The weather turned very wet, and the steep mountain proved difficult. On th south side of the pass—which is about 13,00 or 14,000 feet—we soon found ourselves in mixe forest, consisting largely of Fir (Picea) an Rhododendron. Here and there were smal patches of rank meadow filled with tall Umbelliferae, Labiatae, and Compositae—Salvia, Polygonum, Pedicularis, Iris, etc., with scattere Primulas by the streams. A Denticulat Primula, probably P. pseudo-capitata, was no yet in bloom even, but the others were over. A the top of the pass, on the earthy slopes, wer alpines, such as Cyananthus sp. and Polygonum Forrestii.

Immediately the pass was crossed the Rhododendrons again changed completely. I wa astonished to find at the summit a dwarf form with snowy, Plum-purple flowers in full bloom carpeting the sheltered alpine slopes. However no sooner did we begin to descend than we cam into solid Rhododendron forest, all the species as usual, having hairy leaves. On the south sid of the pass I found two species, on the nort side, three. Taking them all together, those foun on the Rou-sha Pass included, the south-facin flank yielded six glabrous-leafed species (one o them has slightly hairy leaves, and another onl found as undergrowth, where it forms dens thickets, has a slight tomentum); the north facing flank yielded eight species, all of then having a woolly covering on the leaves, or in th case of dwarf species a thick coat of scales. Th inference is that the Rhododendrons are ver sensitive to frost, snow, and sunshine, but particularly to snow in spring.

Descending from the pass I found the curiou form of Primula Poissonii, already referred to a growing near Yung-ning. At dusk we reache a small village, and on the following day August 5, the monastery of Tung-chu-ling on th main road to A-tun-tzu. As we had now bee travelling for thirteen days without a halt, w rested a day before starting on the long climb over Pai-ma-shan. *F. Kingdon Ward.*

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[*] The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17 July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, and March 10, 1923.

GARDEN NOTES FROM S.W. SCOTLAND.

Several years ago I received from a frien a small plant of a Barberry, under the nam of Berberis cretica—a Mediterranean species o lowly stature. It was a decided misnomer, fo the plant, now nine feet high, has proved to b merely a variety of the Chilean B. buxifolia from which it is botanically indistinguishabl But it is a very desirable variety, as vigorou as the type and flowering a full month earlier. This year, for instance, it began to flower in the last week of February, and myriads of unopened buds, hanging like little golden globes, were almost as attractive as the full-blown blossoms. One appreciates its precocious bloom all the more, because it has not to compete, as has the common form flowering in April, with such gaudy rivals as B. Darwinii and B. stenophylla. B. buxifolia is the only one of the genus known to me, whereof the berries are palatable without cooking. It produces them in profusion; but the birds consume nearly all before they are properly ripe.

The predominance of yellow in the blossom of spring-flowering plants has been emphasised in British gardens by the popularity of the genus Narcissus, by the profusion with which many species flower and become naturalised, and by the fact that, with few exceptions, the livery of the family is yellow. Outside the garden, the far-flung radiance of Gorse blossom has confirmed the belief, which I have sometimes heard confidently expressed, that yellow prevails more among spring flowers than among those of any other season. I do not think that this is in accordance with fact. Granted that among spring-flowering plants of the northern temperate zone, the number of species bearing yellow flowers is greater than that of species bearing flowers of any other colour, in like manner yellow is the dominant note among flowers of the othe seasons also. This phenomenon has bee explained by Grant Allen as the result of petal being expanded stamens, not, as has been hel by many botanists, altered leaves; and wherea it is the exception for stamens, anthers an ollen to be of any other colour than yellow, at hue was the primitive, and remains the most equent colour in the blossoms of all seasons. ccording to Grant Allen, the next colour to be veloped, as plants became more highly organed, was red, then purple, and lastly blue, hich is the least frequent hue among flowers. ut I have not been able to understand how he counted for white, which is nearly as common s yellow in the petals of flowers.

Among hardy spring-flowering plants usually rown in British gardens there is no lack of louring other than yellow. Indian and Chinese hododendrons furnish every hue from blood-red flesh colour; Anemone fulgens flaunts intense arlet;

Mid the sharp, short, emerald Wheat, scarce risen three fingers well,
he wild Tulip, at end of its tube, blows out its great red bell
ike a thin clear bubble of blood, for the children to pick and sell."

The flowers of Hazel and Parrotia persica have petals, but kindle bright sparks of crimson—e former with the stigmata of the female owers—the latter with its clustered anthers. hen there is a wide range of reds in the arieties of the Japanese Quince. Violets, rocus, Anemone coronaria and Iris reticulata ay be relied on for purple; many species and arieties of Primula have red and purple flowers, nd there is no lack of blue among Gentians, quills, Chionodoxa, Grape Hyacinths, Anemone ennina, Myosotis, Omphalodes verna and Periinkle.

The mutation from yellow to blue, through d, is displayed in miniature by the ttle British annual, Myosotis versicolor, whereof e flowers open yellow, turn pink and finish ue. The right conclusion seems to be that ere is not a larger proportion of species beare yellow flowers in spring than there is at her seasons.

No border plant known to me responds more ddenly and swiftly to the stir of spring than does the Crown Imperial. Long before we mortals are sensible of any mitigation of winter chill and gloom—nay, sometimes, as in the present season, when the chill and gloom are at their worst—this gallant plant thrusts fat, ruddy noses through the soil, which rush with amazing rapidity into shining green columns. Lilies and other things are pushing up, but always with a measure of deliberation; but the growth of the Crown Imperial is headlong. No February would I deem to have played its part in the calendar if it did not ensure this cheerful phenomenon. What a fuss we should be making about the Crown Imperial if it had just been sent here by Mr. Wilson, Mr. Forrest, or some other intrepid collector! Yet in comparatively few gardens is a place given to this jocund herb. *Herbert Maxwell, Monreith.*

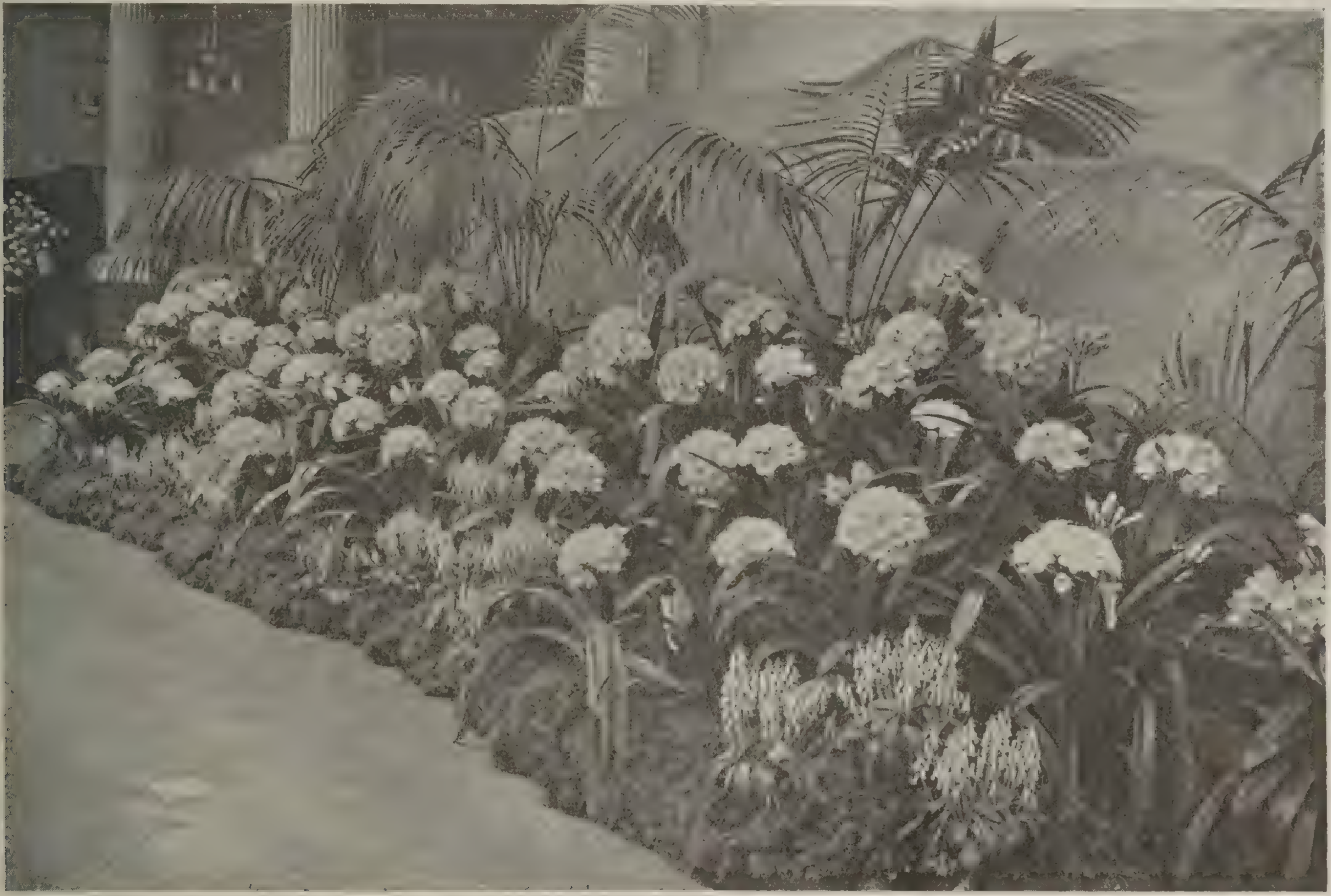

FIG. 76.—SIR GEORGE HOLFORD'S GOLD MEDAL EXHIBIT OF CLIVIAS AT THE ROYAL HORTICULTURAL HALL (SEE PAGE 153).

NOTES FROM WISLEY.

The theory has often been put forward that the more primitive and simple types of flowers bloom earlier than the more highly specialised, and that accordingly at the beginning of the year there is a predominance of simple colouring, which gives place to deeper and more complex colouring as the year advances and the sun's rays become more powerful. The idea can be supported, to some extent, by making judicious omissions from the ranks of our early wild plants, for large numbers of these flowers are white or yellow, such as Snowdrops, Anemones, Primroses, Buttercups, Kingcups, etc. Brighter coloured flowers come later—Meadow Crane's Bill, Monkshood, Poppies, Gentian, Pimpernel and many others that might be named. In the garden of to-day, however, this theory has been upset badly so far as colour is concerned, since selection and hybridisation have provided a great variety of spring flowers of brilliant hue. The banks in the wild garden at Wisley are now covered with them.

At the present time the predominant colour is bright blue, owing to the masses of Chionodoxas and Scillas in flower. The species of Chionodoxa which has spread most luxuriantly is C. Luciliae, with clear blue petals turning to white at the base. A completely white variety occurs, also some giant forms which lack the bright colour of the type. C. sardensis is also flowering in large numbers; this beautiful little plant differs in many ways from C. Luciliae. The flowers are smaller and less pendulous, and are of an intense Gentian blue colour, except for the stamens, which form a white cone in the centre.

Scilla bifolia and Hyacinthus azureus are also responsible for the predominance of blue, but they are tempered with coloured Primroses, Erythroniums and orange, purple and white Crocuses, the whole producing a delightful effect on a great bed of moss of vivid green. Among the Crocuses the beautiful C. Kathleen Parlow is to be seen in flower. This variety is pure white, except for its feathery, orange styles, and bears no trace of the customary purple veining in the perianth. An early flowering Umbellifer suitable for the wild garden is our native Myrrhis odorata (Sweet Cicely). The flowers are white and rather insignificant, but the leaves are handsome and Fernlike, and when bruised emit a pungent odour resembling that of liquorice.

In the Alpine house most of the early Saxifrages are over and have given place to such plants as Epigaea repens, Sanguinaria canadensis, and Primula viscosa. Saxifraga burseriana minor is flowering, however, being a little later than its relations; also the large, white-flowered S. Obristii.

At the foot of the rock garden is a large rock bed which is completely covered with flowers of Viola odorata, and helps to link up the rock garden with the wild garden.

Higher up some species of Pulmonaria (P. Mawsonii and P. saccharata), are beginning to flower. In common with many other members of the Borage family, the flowers of the Lungworts usually open pink (sometimes purple, or even salmon), and change to bright blue.

Rhododendron intricatum and R. racemosum are now in full bloom. The latter varies considerably in the time of opening and in the colour of its flowers, which in bud are usually bright pink, paling on expanding, but in some plants the fully expanded flowers are quite colourless except for their pink filaments.

Among the Carnations undergoing trial few seem to possess much scent at the present time. An exception is the Perpetual Malmaison variety Mrs. Myles Kennedy, which gives out a powerful and delicious perfume. In the perpetual-flowering group Elsenham Beauty has been doing well. *J. E. G. White.*

ORIGIN AND EVOLUTION OF SUMMER FLOWERING GLADIOLI.[*]

As in the case of the greater number of genera of plants which have been brought to a high degree of horticultural perfection, one finds at the origin, that is to say, at the point where the improvements begin one, or more often several species which, by means of crosses, have mingled their characteristics and combined them in intermediate forms or colours, thus producing a race of hybrids capable of progressive improvement.

In the case of Gladioli, the first hybrids were the Gandavensis Gladioli, produced about the middle of the last century, which are still the most remarkable, and, horticulturally speaking, the most important, by reason of the high degree of perfection obtained in them by certain French specialists. Later, the introduction into cultivation of certain South African species, bringing new characteristics which were soon absorbed by hybridisation, was the means of creating new races, now very popular, such as the large-blotched Gladioli, and the Nancy hybrids to which is attached the name of their creator, M. Lemoine. More recently there have appeared the hybrids of G. primulinus, resulting, like the preceding experiments, in a new race richly endowed with good points.

Before studying these races in greater detail, it will perhaps be as well, the better to understand the extent and diversity of the genus, to make here a few remarks on the specific representatives of the genus. Of the hundred or so species which exist, about fifteen only are European or Asiatic, and only four or five are indigenous in France, notably G. segetum—common in the cultivated districts in the south—and G. communis, found in the fields of Montpellier, Toulon, etc. All the rest are South African. It is a remarkable fact that the European species have not given rise to a single noteworthy race or variety, except that they have supplied some variations in colour, white among others. Our horticultural Gladioli are essentially of foreign origin.

The first hybrids in point of date were the Gandavensis Gladioli, raised in Belgium in 1840 by M. Bedinghaus, gardener to the Duc d'Arenberg, by crossing G. psittacinus with G. cardinalis or G. oppositiflorus[†]. Doubts have arisen as to the utilisation of the first-named which have never been completely settled. The G. gandavensis type still exists in cultivation, and so does G. brenchleyensis[‡], which was raised about 1680 by Mr. Hooker, who lived at the village of Brenchley, in Kent. This old variety, still frequently cultivated in gardens, and for cut blooms, on account of its bright red flowers and stems of a remarkable length for the period, is also valued for the regular shape of the flowers, and for their habit of coming out in large numbers all together. Gladiolus Surprise, for long cultivated and prized by florists, was a French variety, raised by M. Malet some time before 1863. Lastly, G. Couranti fulgens, which was also cultivated for many years on account of its merits, yielded in nothing to modern varieties until after the beginning of the present century. These old varieties can still be found in some collections, notably that of MM. Vilmorin, Andrieux et Cie, at Verrieres.

Among the first of the raisers who took a considerable part in the improvement of the Gandavensis Gladioli were M. Truffaut, of Versailles; M. Courant, of Poissy; MM. Verdier, father and son, of Ivry; and more particularly M. Souchet, then superintendent of the Park at Fontainebleau, who early distinguished himself by the production of large-flowered varieties, which gained for him almost immediately a world-wide reputation. He began his experiments directly after the appearance of G. gandavensis, and at the same time made use of G. cardinalis and G. blandus[*].

His contemporaries, MM. Souillard and Brunelot, who afterwards succeeded him, went so far in their improvement of the Gandavensis hybrids that their work has never been appreciably surpassed. At the present time, M. Brunelot the younger still continues his work in the same direction, and the varieties shown by MM. Vilmorin, Andrieux et Cie (in which firm he is employed as propagator) demonstrate that he still manages to produce new qualities, in the size of the flowers, the length of the stems, and most of all in the colours—the blotched slates and ash-greys which are the chief charm of the Lemoinei hybrids.

M. Brunelot deserves to be congratulated on the work which he and his predecessors have accomplished, and which he still continues, in the improvement of the Gandavensis Gladioli, which it would be more logical to call Fontainebleau Gladioli. I should like also to associate, in this tribute of praise, the Lemoines, father and son, for the magnificent races of Gladiolus which they have produced, as well as the various growers and amateurs who have contributed at one time and another to the improvement of this beautiful genus. Permit me also to dwell upon the pride which must be felt by French horticulturists in general, and by the members of the Société National d'Horticulture de France in particular, to see in this case (as in the case of the Iris, and of many other groups of useful and ornamental plants) that their own countrymen are in the forefront of the work of development.

Although in Germany, in England, and in Holland—where, during the past few years, especially fine, large-flowered varieties have been produced—and in America, where the Gladiolus has a vogue only equalled by that of the Iris, some remarkable varieties have emerged which may appear even superior to those of French origin, still, it is only just to recall that the very improvements obtained in these countries are due to the work of the early French raisers.

When seed is sown of plants which have arrived at the degree of perfection now presented, which are hybrids of hybrids, very highly multiplied, and therefore particularly liable to variation, it is easy, for anyone at all familiar with the workings of heredity in plants, to understand that it is hardly possible to avoid producing at least some plants equally remarkable for the size of the flowers or the length of the stems, and variously coloured.

For a long while the Gandavensis Gladioli were the only race to be cultivated, but in 1870-1871 Gladiolus purpureo-auratus and G. Saundersii were introduced from South Africa, and these species gave rise to the two races of which I am about to speak. In expert hands such as those of M. Lemoine, who fully comprehended the great part which these two Gladioli could be made to play, they soon yielded the G. Lemoine type which resulted from a cross between G. gandavensis and G. purpureo-auratus. From this first cross there soon arose, by means of sowings of seed and new crosses, the race of large-blotched Gladioli which is known by the name of their raiser, and which soon gained recognition and appreciation for the distinctive, curved flowers, and for the large blotches of deep colour with which the petals are ornamented.

(*To be concluded.*)

THE NATURALISATION OF PLANTS.

The naturalisation of spring-flowering plants
worthy of much wider expansion than is com
monly practised. Many of the hardy bulbs pro
duce gorgeous effects in the conventional flower
garden where they serve a useful purpose, bu
for real garden adornment the most effective
all modes of arranging is to naturalise them
grass. In such situations, when once carefull
planted, they provide an annual source of beaut
and give no further trouble.

In many country places wide belts of bar
grass lie between shrubberies and walks, whic
frequently never provide bright colouring, bu
only exist to be roughly mown about twice
year. The charming effects which may be pro
duced on these sites by the planting of spring
flowering bulbs surpass in beauty any forma
spring garden, however gay. In their natura
bed of grass the bulbous flowers look far bette
than they do with the brown earth of a borde
beneath them.

Where space permits a long season of colou
display may be obtained by planting irregula
groups of bulbs to follow each other in seaso
beginning as early as January with the Wint
Aconite, and continuing in February with Snow
drops, Snowflakes and Chionodoxas. Durin
March a wide choice of material is availab
which gives the intelligent planter much sco
for beautiful colour effects, such as Crocuses
variety, Scillas, Anemone apennina, Gra
Hyacinths, and the early flowering Narcissi.

The later flowering Narcissi will provide amp
material for extending the season through Ap
and May, supplemented by such beautiful plan
as the Dog-tooth Violet and several species
Fritillarias and Ornithogalums, all of which su
ceed and grow freely in grass. Tulips are seldo
seen growing in grass, yet where the soil sui
them, and there is no danger of the broad, fles
leaves becoming injured by overhead traffi
both the species and many of the florists' vari
ties do wonderfully well in such places, a
greatly assist in maintaining colour and varie
in the display.

Naturally the prettiest results are only obtai
able when the grass need not be mown until ha
time. The leaves of the earlier flowering plan
will then have completely died down, and tho
of the later flowering ones will have entered t
ripening stage, so that the plant will suffer litt
from the loss of foliage.

Some of these plants and many others a
lend themselves admirably to naturalisation
our woodlands. The Winter Aconite is partic
larly suitable for planting under the branches
trees, where it flowers even earlier than in gras
and develops its foliage while the trees are st
naked, covering the ground with a pretty, so
green carpet. When this fades the trees put for
their foliage, and hide the ground until autum
Crocuses and some of the Anemones are also ve
suitable for this purpose, and once establish
they take care of themselves.

Two members of the Borage family, Omph
lodes verna and Lithospermum prostratum a
ideal subjects for naturalising, and can hardly
surpassed for the depth and beauty of the bl
of their flowers. Omphalodes verna spreads i
self quite freely in the more open glades of th
woodland, and whereas in the garden border
becomes unattractive when its spring flowe
have passed, in the wild garden the low plan
serve as a carpet to the soil. Lithospermu
prostratum is particularly suitable for plantin
on dry, open, sandy banks. In such a positi
its delightful, Gentian-blue flowers often co
mence to open as early as February.

There are many plants which do much bett
in the shelter of a woodland garden than in th
open border. The various Christmas Ros
flourish in sheltered nooks, and their flowers a
much less liable to become weather-stained.

The beautiful North American Trillium gran
florum loves shade and a moist, free soil in th
low-lying parts of the wild garden. These fe
suggestions refer mainly to spring flowers
the undressed portions of the pleasure garde
which may also be planted with subjects th
will bloom through the summer and autu
and a few even in winter. *W. Auton.*

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[*] A paper read by M. Mottet at the conference held by the Société Nationale d'Horticulture de France on August 10, 1922, on the occasion of the Gladiolus competition; translated from the Society's *Journal*.

[†] See *Flores des Serres*, 1846, March, t. I.

[‡] See *Gardeners' Chronicle*, 1910, Part II., p. 83.

[*] Ex. Baker, *Handbook of Irideaea*, p. 228.

FOREIGN CORRESPONDENCE.

CULTIVATION OF ASPARAGUS.

I READ with great interest the articles on the ultivation of Asparagus in the issues of Febuary 10 and March 3 by *W. F. R.* and Mr. ykes respectively. I may refer to another ystem of culture by which those large, long, hite heads of Asparagus which Mr. Dykes ongs for are produced.

Instead of the three-row system I prefer one ow. The ground is measured and poles are riven in at each end of the plot; the beds are hen marked out four feet wide with a pole at he end of each. A trench is made as for Celery, good quantity of well-decayed manure being laced in the bottom and dug in. A layer four nches deep of the upper soil is placed on the top o form a small ridge, and the plants are set n this ridge in the bottom of the trench one oot or fifteen inches apart. The Asparagus ill spread very quickly and in a few years fill he trench each way. To ensure a quick and trong growth, attention should be given to atering and manuring; a mixture of leaf mould, and, decayed vegetable compost and night soil rovides a very good manure to use once in very two or three years, substituting artificial anures in the other years, with an occasional pplication of agricultural salt. The third year fter planting the stems may be cut. To prepare or the bleaching of the thick sticks, dig up the oil at each side of the bed and work it to a fine ondition with the fork. Place the soil over the ed to a depth of eight or ten inches, and thus orm a bed three feet wide at the bottom and a ittle narrower at the top, somewhat resembling n earthed Celery trench.

In cutting the Asparagus use a long knife, ushing it down as deeply as necessary to secure eads eight or ten inches long. The heads hould be cut at least twice daily in order to revent the tops becoming purple to any great xtent. By adopting this method of planting, arthing and cutting as soon as the heads break hrough the soil the result will be large white ticks such as Mr. Dykes wishes to have, and hey are edible nearly to the part where they re cut. After the cutting is finished and the lants are growing freely the soil should be rawn from them and placed in the alleys beween the beds to allow air and moisture to each the roots more readily. For the first two ears the spaces between the rows may be tilised for the growing of Cauliflower, Leeks, tc. *James Page, Sweden.*

FRUIT REGISTER.

APPLE LORD HINDLIP.

IT is somewhat singular that many excellent arieties of fruits appear to be so little known r generally cultivated. Apple Lord Hindlip, lthough introduced by Messrs. Watkins, of ereford, so long ago as 1896, is not often et with in gardens, yet it is one of the best ate Apples in season up to April. Fruits of his variety were brought to the notice of the oyal Horticultural Society's Fruit and Vegeable Committee at the last meeting by Mr. . C. M. Veitch, and the members were so mpressed with the merits of this fine sort that any regarded it as worthy of a First Class ertificate, but on reference to the Award ook, it was found that this Apple had already eceived the highest award. It was first shown y Messrs. Watkins on January 4, 1896, when n Award of Merit was granted the variety, nd on the same date the little-known culinary ariety, Royal Late Cooking, received a similar ward when shown by Mr. Owen Thomas.

The variety Lord Hindlip is of conical shape, nd has a dull yellow skin striped on the sunny ide with patches of crimson. The apex is neven; the eye closed and set in a somewhat hallow basin. The stalk end is russety-green, nd the stalk itself, about half an inch long, s inserted in a regular, conical cavity. The lesh is white, juicy, and of very agreeable avour. Mr. Bunyard, in *A Handbook of ruits*, recommends the variety as a likely candidate for "the desired late market Apple," for which reason it is worthy of inclusion in the trial of commercial varieties of Apples at the Wisley Gardens. The tree is said to be a good cropper, of somewhat slender growth and spreading habit. A specimen before us is in splendid condition, and has every appearance of remaining in good condition for considerably longer than April. Mr. P. C. M. Veitch, of the Royal Nurseries, Exeter, is to be congratulated on again bringing this fine, late, dessert Apple to the notice of growers.

APPLE CHERRY PEARMAIN.

THIS very old Herefordshire cider Apple, of unknown history, is to my mind a very useful sort to plant as a dessert variety, as the fruits are of good quality in mid-December. It is very good eaten from the tree, also cooks well, and the flesh is of a rich pink tint, not unlike that of Hawkes' Champagne Rhubarb. The fruits are of medium size, very handsome in colour, and roundish oblong in shape. The skin is yellow, covered with streaks of crimson; eye small and closed, set in a narrow cavity; stalk half an inch long. The flesh is soft and reddish pink in patches beneath the skin, and outside the core fibres; sweet and pleasant to the taste; juice plentiful, rich and of a rich pink colour.

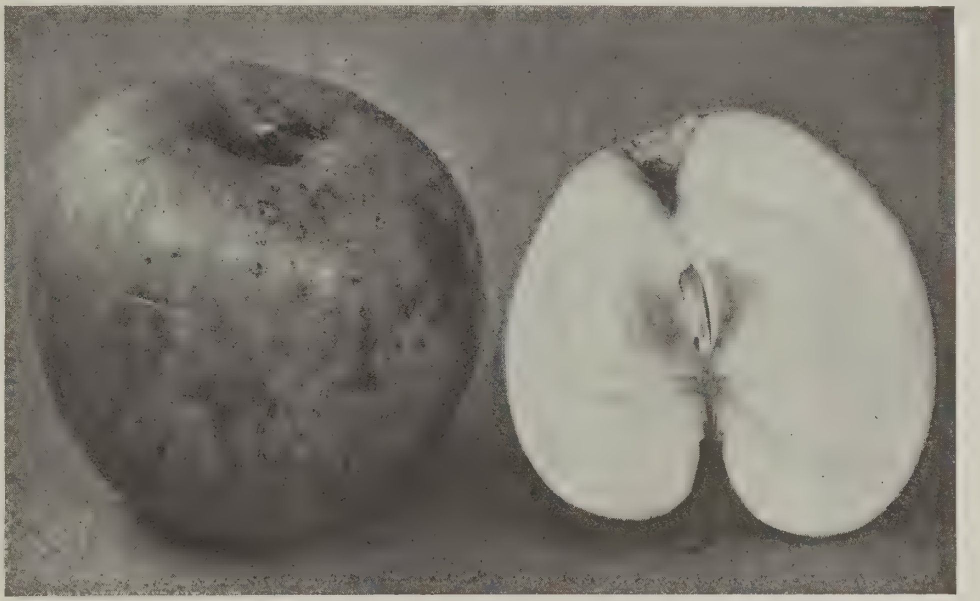

FIG. 77.—APPLE LORD HINDLIP.

The tree is a bounteous cropper and as ornamental as useful. Half standards or bushes planted in shrubberies would not only show to fine effect, but prove of great utility. A fruit-growing friend of mine near Malvern has obtained more money in the fruit market for Cherry Pearmain during the past season than for Newton Wonder, Warner's King or Bramley's Seedling. For its colour and flavour, in its season, it finds a ready sale. I have never taken notice of its qualities until recently, as the variety is generally recognised as a cider Apple. *Pomona.*

RED CURRANT LAXTON'S PERFECTION.

THOSE who are planting fruit bushes this spring should not overlook the merits of Messrs. Laxton's Red Currant, Perfection. The special merit of this new variety is its long bunch of large berries, and the bunches are produced with great freedom in big clusters. The berries on the racemes sometimes number as many as twenty-five, and, in addition to size of bunch, the variety possesses other merits, including a robust and vigorous habit. It has, however, one defect, and that is the vigorous branches of the current year are liable to tear out at their base, but by shortening them at summer pruning, this trouble may be largely overcome. When the plant is pruned of its young wood closely plenty of fruit buds will form on the old wood, and give a bountiful crop. *T.*

HOME CORRESPONDENCE.

Asparagus.—The article on "Asparagus," by Mr. W. R. Dykes, in your issue of March 3, proved very interesting to me. While gardener to a very estimable gentleman in Bedfordshire, each year when it came to cutting down the Asparagus he specially instructed me to "sow all the berries." As this was contrary to my experience I explained that it was a great mistake. However, he would always end up with, "At my old home there were Asparagus beds over 100 years old, and my father always sowed the berries and I always had them sown, and we always had plenty of Asparagus." On inquiry I found that he certainly had plenty of Asparagus, but it was always very thin. As he was an elderly gentleman, and never interfered with any other branch of gardening, I used to carry out his pet idea with regard to Asparagus, and leave a liberal sprinkling of berries on the beds, with the result that they became crowded with seedlings. I mention this because I believe it to be by no means an isolated case. I have often seen Asparagus beds crowded with weak growths, the result of sowing the berries. If the facts mentioned by Mr. Dykes were more generally known, especially the rigorous selection of male plants, we should see much better results. More than once I have heard country people say, "You must be sure and sow the berries," and these old-fashioned notions die hard. *R. Gardner, Northbrook Gardens, Godalming.*

Failures with Plants.—A small printer's error in my note on "Failures with Plants," on p. 123 of the March 3 number, rather spoils my argument in reference to Gentiana verna. The first word in the ninth line from the bottom of the page should have been "turf," not "tuft." Possibly Gentianas would succeed here if planted amongst grass, but on their native Alps they grow and flower before the taller grasses, etc., have run up high enough to smother them, whilst here I fear that the grass would grow before the Gentians had opened their blooms, and they would fail accordingly. *Calbran J. Wainwright.*

Late-flowering Chrysanthemums.—In a reference to my notes in the issue of February 17, *Chrysanthemum Grower* is very dogmatic in his assertions. But let us see what they amount to. He states he has grown Autocrat for years. I stated in my article that this, Enfield White, and Cheshunt White are synonyms, a fact which he evidently overlooked. As for the variety Liverpool, your correspondent makes a statement which he cannot substantiate; it is neither Golden King nor Golden Age, for 2½ ft.

would have to be added to the height of these varieties, and they would have to be vastly superior in the mode and size of flowering to come up to the one sent me. As to not being up to date, I assumed readers of the *Gardeners' Chronicle* know all about Framfield Pink, Baldock Crimson, etc., for I was attending to the first named fourteen years ago, and well remember a controversy carried on in these columns concerning it about ten years since. Huntsman, Sunshine and Bronze Molly, I only class as November varieties. True, they were in bloom in December last year, but we all know the reason. Lastly, *Chrysanthemum Grower* considers Chrysanthemums do not deteriorate; I am very glad to hear it, for it must be pleasant to have a collection of exhibition sorts which the young men of the present day never saw. *Y. G.*

——*Chrysanthemum Grower's* criticism of *Y. G.'s* notes will cause some readers to smile. There is, however, a question of fact. Autocrat is the registered name of a Chrysanthemum raised by Mr. J. W. Scott, of Messrs. Lowe and Shawyer, so that Cheshunt White and Empire White are spurious names for that variety, and I venture to suggest that these names were given to the variety (for trade purposes) by those who knew the variety's proper name. There is no difference in the bloom of the plants bearing the three names, except such as may arise as the result of differences in cultivation, dates at which the buds are taken, etc. Your correspondent also states there is no such variety as Liverpool Yellow. There is. Although I know that Liverpool Yellow has been once or twice re-christened I was not aware that it bore the name of either Golden King or Golden Age. Golden Age I do not know, but Golden King is a variety sent out by the late Mr. W. Wills some ten or twelve years ago. I do not know the habit of growth of these two varieties, but I do know that Liverpool Yellow is a good, clean grower, and averages a full 6 feet in height when well grown; it is well described on page 94. To put the facts clearly, Liverpool Yellow is also a variety raised by Mr. Scott, but in the early stages it did not do particularly well in its original home; a few plants were sent for trial to one of the best growers near Liverpool, where it did quite well, and although up to that time it was grown under a number, it was at once named Liverpool Yellow. I may add that it is now one of the standard varieties on the London market. Possibly outside the market it is known as Golden Glory by the majority of growers. I was quite interested in *Y. G.'s* notes on page 94; they are much to the point, and although I have not the pleasure of knowing the writer under his *nom de plume*, I trust he will pardon me taking up the cudgels on his behalf; but as I happen to know the facts it is just as well to state them. *Another Grower.*

——As a 36 years reader of your paper, and for thirty years a grower of late Chrysanthemums, I was highly amused at *Chrysanthemum Grower's* "correction" of *Y. G.*, as the would-be corrector is further from the truth than the corrected. Any market grower of standing knows that Autocrat, Enfield White and Cheshunt White are one and the same thing. *Chrysanthemum Grower* tells us there is no such variety as Liverpool Yellow—but there is! Under that name, however, it is one of the registered varieties, and it has only found its way on to the open market within the last year or two, under the name of Golden Glory. How is it both of these correspondents have missed that best of all recent introductions among late yellows, namely, Framfield Glory? This is a variety destined to rival in popularity the W. H. Lincoln of years ago. *E. C.*

Winter Salads.—In the last paragraph of the article under this heading of "Winter Salads," on page 138, Mr. W. Auton states: "It will probably be a surprise to many that Claytonia perfoliata, the Winter Purslane, makes an excellent salad." It is certainly a surprise to me, and that for three reasons: (1) I was not aware that C. perfoliata was ever known as Winter Purslane; (2) I cannot find that there is such a plant as Winter Purslane; (3) Claytonia perfoliata being an annual is not found in the winter; at least my experience is that it entirely disappears long before winter, and reappears from seed in the spring. It is possible, however, that on light soils it may germinate in the autumn, persist through the winter, and flower and fruit in the next year. I would ask, therefore: "Is Mr. Auton sure of his species? Or is he really thinking of some other plant, and if so, what? *C. Nicholson.*

The Culture of Montbretias.—The advice given on page 105 by *C. T.*, under "Cultural Memorandum" for Montbretias, does not agree with our practice. He suggests that Montbretias stored in cold frames should be separated and planted out in their flowering quarters. Our method is to replant in the frames or boxes after separation, and plant out at the end of April or the beginning of May. We grow tens of thousands annually and we find Montbretias are not very hardy. Our practice is to separate the clumps and keep only the stolons or young growths which are given off from last year's flowering corms. These give far better results, as the flowers are larger and of better colour. As for the method of growing non-flowering corms for another season, it is not worth the trouble. We have found the flowers from old corms much inferior to those produced by growing on the young stolons. We also find that Montbretias are not satisfactory when grown in full shade. *J. E. Fitt, Earlham Hall Gardens.*

Primulas for Home Decoration.—I was deeply interested in your notes on "Greenhouse Plants at Reading" (p. 91, February 17), especially regarding the greenhouse Primulas. I have this season grown a good batch of Primulas, both sinensis and stellata varieties in 5-inch pots, and some in 2½-inch pots for decorating the corners of the dining-room table, and found them very useful and pleasing. They were grown under exactly the same conditions as Cinerarias. They have been supplied with many applications of liquid cow manure, but no lime was added to the potting compost. I enclose two photographs [not suitable for reproduction—Eds.], one of P. sinensis, the other of P. stellata. Last year I discovered that over-potting was very disagreeable to Primulas. *Geo. Winter, Pickhurst Manor Gardens, Hayes, Kent.*

Romneya Coulteri (see pp. 36, 139).—*Western Wight* is mistaken in suggesting that there are several forms of the Mexican Poppy. There are, as Sir Herbert Maxwell probably knows, two distinct species which, though quite similar in flower, are very different in appearance and habit. We have both here growing together, and it is easily seen in what respects they differ. R. Coulteri likes to have its roots rambling among stones in rich loam and free drainage. Under such conditions it will become a rampant grower, sending up suckers several feet from the main stock, and giving growths five to six feet high, but though the previous year's stems will survive a mild winter, they never flower here. R. trichocalyx never spreads in this manner, and always flowers from its old growths, but, of course, the dense coat of bristles on the flower buds constitute the characteristic difference from R. Coulteri, which also has larger and less glaucous foliage. *R. Windsor Rickards, Usk Priory, Monmouthshire.*

Gardens at Olympia.—I was glad to read the timely note in your issue of March 10, on the floral exhibits at Olympia. Having read in the daily Press that there was "all the wistful charm of spring and all the golden glory of summer to be found in these wonderful gardens," I paid a visit to Olympia and found the gardens even more wonderful than I had been led to believe. For I found spring and summer flowers, and natives of different climates blossoming side by side, closely packed together, just as one might see them offered for sale at some West End florists' shop. The association of such flowers as blue and violet Cinerarias with Hyacinths in another tone of blue, and indoor Azaleas with Crocuses of another tone of orange, was at once a discord and an anachronism. One well constructed rocky stream was rendered unnatur by the introduction of electric lights behind cascade. Rich purple Crocuses killed the ton of the so-called "blue" Primroses, and beds closely massed Darwin Tulips in scarlet a mauve shades, which flower naturally two three months later, were introduced in clo proximity to bright yellow masses of Daffodils strong meat for the formal garden and quite o of place in any representation of a wild one! another exhibit, a long water-tank contain Iris tingitana, where they could not possib have lived for any length of time, and we close to white Arums, which enjoy a differe climate. The fountains shown were of t primitive type, consisting of a single jet. O certainly fell into a metal basin, but the j was so large that the splashing was anythi but restful or artistic. It is much to be regretted that such abominations should be pe petrated by professional gardeners, and sincere to be hoped that they will not be imitated the public, or many true garden-lovers will fe they have to some extent spent their lives f naught. *H. H. W., Hertford.*

Poisonous Pods of Robinia Pseudacacia. It is not generally known that th handsome tree possesses a poisonous pri ciple called robine, which is fatal some aniamls. Sir Harry J. Veitch te me that three of his sheep died in the lambi season through eating the pods that had fall on the ground from the trees, as the remai of the pods were found, as well as the seed in the stomach of the sheep. It is, according Dr. G. D. Lander, the author of *Veterina Toxicology*, 1912, the first case on record sheep being killed by these pods; all three she were dead within three days. The tree is oft grown in gardens, and has flowers resembli those of Laburnum, but white, and somewh fragrant, instead of yellow, and leaves wi numerous leaflets. It is commonly known Acacia, Bastard Acacia, False Acacia, or Comm Locust Tree. When growing in garden hedges as to overhang pasture land, it should destroyed, and planted only where the pods ca not drop, or where the foliage cannot be reach by stock, to which it is a serious danger. is well known that pregnant animals will oft browse on any plant that they would not tou at other times, while any animal will try sorts of greenstuff when there is a shortage grass or other familiar herbage. It is as a r only under such conditions that they will Yew, which only proves fatal as a rule wh eaten on an empty stomach. *E. M. Holmes.*

Gardeners' Wages (see p. 151).—In reading t article by *G. W. K.*, with reference to wag it occurs to me that had he been placed as many ex-service men were, he would have be more kindly in his judgment. Many ex-serv men of the "blue aproned fraternity" had perience something similar to mine wh demobilised. I was demobilised in Augu 1919, after four years' service, only to find th my pre-war position as gardener, in a medi sized place, was non-existent, the gardens havi been closed owing to the death of my employe and the cottage was required for another ma Having just returned from the Far East, I w not fully aware of the wages head gardene were receiving, but making application for post, I asked 100 per cent. above pre-war rat many of my applications were returned mark "wages too high." I began to get weary writing, and of existing on the dole, pl drawing on my savings, but at last came offer of a situation in a medium sized pla but with a low wage. Realising that a l wage was better than the dole, and employme better than unemployment, the offer was cepted, and gratefully. Three years ha passed, and I am still in the same position, during that period the low wage has be increased three times, and now amounts to fair sum. I am afraid that if the he gardeners who, during the war, kept their po tions and received high wages, had lost th berths and had to live as many ex-service m have done, they would not be so free wi their criticism. *W. M.*

SOCIETIES.

EADING AND DISTRICT GARDENERS'.

ONE hundred and twenty members' were resent at the meeting of this Association on e 6th inst, when Mr. F. Townsend delivered lecture on "Annuals for Exhibition and arden Use." The lecturer is well known as most successful grower of these popular owers, both under glass and in the open air, nd his remarks on the details of culture and on he most popular sorts and varieties were folwed with the keenest interest. He laid paricular stress on the value of Larkspurs, Godeias, Clarkias, Salpiglossis, Coreopsis, Lavatera, igella, Asters and Stocks. The lecture was ade particularly interesting by a series of uto-chrome and other lantern slides.

In the competition for six blooms of ichardias (Arum Lilies) many splendid pathes were shown, and the judges' awards ere: 1st, Mr. A. H. SOPP, The Lodge, St. eter's Hill, Caversham; 2nd Mr. J. WYNN, he Gardens, Hammonds, Checkendon; 3rd, r. W. GOWER, The Gardens, Calcot Grange. r. W. BROOMFIELD, The Gardens, Clyffe ouse, Mapledurham, showed blooms of a seeding Carnation, with remarkable foliage; from ach joint, in conjunction with the ordinary eaf, it produced a bunch of crested foliage.

ROYAL CALEDONIAN HORTICULTURAL.

MARCH 6.—The ordinary monthly meeting of his Society was held at 5, St. Andrew's Square, dinburgh, on this date, Mr. J. W. M'Hattie, resident, in the chair.

A lecture, illustrated by lantern slides, was elivered by Dr. R. J. D. Graham, Royal otanic Garden, Edinburgh, on "The Flora nd Gardens of Mesopotamia." Lower Mesootamia, he said, was a country of light rainall—about 10 inches—and this was augmented y irrigation. The chief agricultural crop was ates, which before the war were exported to the alue of £1,500,000. This region rivalled Egypt n area as a Cotton-growing country, and also in he yield and quality of the crop. Upper Mesootamia had a heavier rainfall than Lower esopotamia, and was the centre of the cereal ultivation. In 1912 over £1.000,000 worth of arley was exported from Bursa, much of which ame to Edinburgh.

NITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE annual general meeting of this useful orticultural Benefit Society was held at the oyal Horticultural Hall, Vincent Square, Westinster, on Monday, the 12th inst., at 7.30 p.m. here was a large attendance of members, and r. C. H. Curtis presided. Following the usual ustom, at the conclusion of the opening proeedings, all present stood in silence in memory f the large number of members who fell in the reat war.

The annual report and accounts presented by he Committee show that no fewer than 120 new dult members were elected during 1922, while 34 embers lapsed and 14 died, leaving the total ffective membership at 1,709, as compared with 636 at the end of 1921, or a net gain of 73. he sum of £10 now granted to the nominees f deceased members has proved to be of great enefit in many homes where long illness preeded the death of a member. As every member ust leave £10 standing to his own individual ccount, this allows £20 to be paid out after his eath. Funeral benefits amounted to £140 uring the year under consideration, and this um was met by deduction of 1s. 9d. from each ember's account. The attendances at committee eetings show that the members of the comittee take a very keen interest in their duties, nd thoroughly justify their selection on the oard of management. The committee conidered that advertising in the Horticultural ress during the past year was thoroughly justiied, and we are glad to learn that a very high ercentage of inquiries were received as a consequence of the advertisements in the *Gard. Chron.* Special reference was made in the report to the annual dinner held at the Imperial Hotel, Russell Square, on October 4, 1922, over which Mr. Leonard Sutton presided. On this occasion the members of the Society made a presentation to Mr. C. H. Curtis, in recognition of his services as chairman of committee continuously for twenty-one years. During the past year the Society has paid £789 13s. 3d. in sick pay; £186 13s. 8d. in grants from the Distress Fund; £691 10s. 7d. as withdrawals from their deposit accounts by members over seventy years of age; £479 6s. 4d. to nominees of deceased members; and £24 3s. 4d. to lapsed members. The total expenditure for the year amounted to £5,214 13s. 9d., and the total income, including £2,281 11s. 8d. as dividends on investments, was £6,187 9s. 5d.; the expenditure included the purchase of £2,000 3 per cent. London and South Western Railway stock and £1,500 of 4½ per cent. Indian Loan. The invested funds amount to over £64,000.

In moving the adoption of the report and accounts, the chairman made reference to the special items therein, and thanked the members for their generous gift to him in the autumn of 1922. The motion was seconded by Mr. R. A. Edwards, and adopted unanimously.

Mr. A. Bedford was elected hon. treasurer in succession to the late Mr. Thomas Winter, and the meeting agreed to vote the sum of £25 to Mrs. Winter in return for services rendered to the Society in 1922 by her late husband.

All the old members of committee were re-elected, and Mr. R. A. Edwards, of Messrs. Cooper, Taber and Co., was appointed to a vacancy, as representing the seed trade. Votes of thanks were accorded the trustees, the committee and officers, the Horticultural Press, and the auditors. The latter, Messrs. Gunner and Puzey, were re-elected. The chairman mentioned that Mr. Gunner had been one of the auditors for a period of thirty-six years. Mr. C. H. Curtis was re-elected chairman of committee, and Mr. T. R. Butler, vice-chairman.

The meeting adopted the suggestion of the committee that a sum not exceeding £100 should be spent on advertising the Society during 1923 as the committee saw fit.

The report and audited accounts of the State section for the year 1921 were presented and adopted, and it was pointed out that the accounts for 1922 were made up and in order, but the Government auditors had not yet attended the office to deal with them.

A vote of thanks to the chairman concluded the proceedings.

LEEDS AND DISTRICT MARKET GARDENERS'.

THE tenth annual Rhubarb show and dinner of the Leeds and District Market Gardeners' Association was held at Leeds on the 24th ult. The number of entries for the Rhubarb competitions constituted a record, and the quality of the produce was of a very high standard.

Mr. A. WORTH, of Farnly, near Leeds, showed the best six sticks of Prince Albert or Linnaeus variety; Messrs. WHITWELL and BRIGGS, Bramley, the best six sticks of Victoria or any other variety, over 5 lb.; Mr. E. WORTH, the best six sticks of Victoria or any other variety, under 5 lb. weight; Mr. J. R. GROUNDWELL, Buslingthorpe, the best six sticks of Dawe's Champion variety, for which a silver cup valued at thirty guineas was offered; Mr. A. COWLING, near Wakefield, the best three marketable bunches of the variety Victoria not to exceed ¾ lb. in weight each, for which Messrs. GARCIA, JACOBS AND Co. offered a silver cup valued ten guineas; and Mr. T. D. WATSON, Morley, the best three marketable bunches of Dawe's Champion variety not to exceed ¾ lb. in weight each, for which Messrs. PASK, CORNISH AND SMART, Covent Garden Market, offered a gold medal.

Mr. J. R. GROUNDWELL having won the silver cup and vase in class 4 for the best six sticks of Dawe's Champion Rhubarb three times in succession, these awards become his property; Mr. A. J. COWLING has also won outright the cup offered by Messrs. GARCIA, JACOBS AND Co., Covent Garden, London.

Obituary.

Mrs. Gilbert.—We learn that Mrs. Gilbert, widow of the late Mr. Richard Gilbert, for many years head gardener to the Marquis of Exeter, at Burghley, near Stamford, died on March 8, at the residence of her daughter, Mrs. Divers, Westdean, Hook, near Surbiton, after a long illness, aged 91 years.

David Charles Powell.—There passed away on February 23, 1923, at Pietermaritzburg, Natal, David Charles Powell, who was born at Highnam, Gloucester, seventy-four years ago. The late Mr. Powell was for some years in the gardens at Higham Court, the residence of the late Sir Hubert Parry; from there he went to Messrs. J. Veitch and Sons, Chelsea, and after valuable experience gained at that famous nursery, he took up responsible posts in various gardens of the English nobility. For about ten years he was in charge of the numerous greenhouses at Moor Park, Hertfordshire, then the residence of the late Lord Ebury. Relinquishing this post he went to Powderham Castle, near Exeter, the residence of the Earl of Devon, and for a period of thirty years had entire charge of the beautiful gardens there; his work was much appreciated, and he was held in high estimation by the Earl of Devon. For a number of years he was engaged by the Devon County Council, as lecturer in horticulture, and his lectures were delivered after working hours in districts adjacent to Exeter. In 1905 Mr. Powell went to South Africa, with his wife, and two daughters, leaving one son in England. His death will be deeply mourned by all who knew him; as he was a general favourite, and very highly esteemed among horticulturists. No doubt there are many of Mr. Powell's gardening friends who will remember him and his work, especially in the West of England. He leaves a widow, two daughters, and one son to mourn his loss.

LAW NOTES.

FAILURE OF A MARKET SALESMAN.

AT Bankruptcy Buildings, Carey-street, W.C., on the 9th inst., the first meeting of the creditors was held of Frank Edward Davis, Jubilee Market, Covent Garden, W.C., residing at 135a, Main Road, Sidcup, and late of White House, Swanley, fruit and Potato salesman, against whom a Receiving Order was made on February 21, 1923. About 1918 or 1919, debtor went to Hextable, Swanley, to manage a haulage company, which was a co-operative company formed to take market produce to London. He held that position for about a year, leaving in March, 1920, to take a stand in the Jubilee Market, Covent Garden, and started selling vegetables in the market. He continued that business until the date of the Receiving Order, but through various bad deals, chiefly in Apples, he lost money, and the general condition of the trade during the last year or two had contributed to his present position. He estimated his liabilities at £1,700, and his assets were estimated to produce £222.

Bad condition of trade during the past 18 months; having bought Apples and Potatos which he re-sold at a heavy loss; and loss caused through "empties" not being returned, were the causes of his failure.

The estate was left in the hands of the Official Receiver.

THE Official Receiver for the Wandsworth District has now issued his report in the liquidation of Toopes, Ltd., The Bridge Riverside Works, Kew. The statement of affairs shows as regards creditors, liabilities expected to rank for dividend £3,583 6s., and net assets £492 15s. 6d. As regards contributories, the paid up capital was £2,110, and the total deficiency amounted to £5,200 10s. 6d. The failure of the Company was attributed to two years' unprecedented slump in trade, depreciation in stock, bad debts, high cost of labour in regard to production, and law costs.

The Winding-up Order was made on October

31, 1922, on a creditor's petition. The Company was incorporated on March 19, 1920, as a private company, to carry on business as greenhouse heaters, makers of poultry houses, incubators, etc. The promoter was Mr. William Carter Slaughter. In the terms of an agreement made on March 22, 1920, the Company agreed to purchase, and Wm. Carter Slaughter, as vendor, agreed to sell, the goodwill of the business of greenhouse heaters, makers of poultry houses, incubators, etc., carried on by him at the Bridge Riverside Works, Kew, in the names of "Charles Toope and Son," and "Robert Toope and Co.," together with the lease, book debts, business furniture, plant, machinery, stock, etc., and the benefit of all pending contracts for a consideration of (a) £1,400 to be satisfied by the allotment to the vendor of 1,400 fully paid £1 shares of the Company, and (b) the payment of the trade liabilities.

For the period March 19 to December 31, 1920, a net profit of £91 17s. 3d. was shown. For the period January 1, 1920, to August 12, 1922, there was a loss on trading of £4,178 11s. 6d. The business began to decline at the end of 1920, and gradually became worse owing to the general slump in trade. The unsecured indebtedness included £2,260 for timber.

A NURSERYMAN'S FAILURE.

The public examination of Mr. A. D. Thompson, 11, Adam-street, Adelphi, nurseryman, lately residing at Hill Crest, Merry Hill Road, Bushey, Herts, against whom a Receiving Order was made on December 31, 1922, on a creditor's petition, has been concluded. The statement of affairs showed liabilities expected to rank for dividend £3,015 18s. 8d., and net assets £333 11s.

Prior to 1911 debtor was in employment as a horticulturist. In or about the spring of 1911 he and another person started to trade together in partnership as landscape contractors and nurserymen under the style of Thompson and Charman, at 11, Adam Street, Strand, W.C., and at "The Nurseries," Bushey. His partner resigned about the end of 1915, and debtor then continued the business on his own account. In July, 1916, he assigned his estate to a trustee for the benefit of his creditors generally. His unsecured liabilities amounted to £1,457 and dividends were paid thereon amounting to 1s. 2½d. in the £.

From 1916 to 1918 he was engaged in improving his own invention for a non-leakable petrol tank for the use of aircraft. In consequence he was exempted from military service. The war ceased soon after he perfected the invention, and he then allowed the patent to lapse. In November, 1918, he commenced to trade as a consulting horticulturist under his own name at 11, Adam Street, Strand, W.C., and he continued this business to the date of the Receiving Order.

About the beginning of 1921 he commenced experiments for the manufacture of a patent green hard tennis court. He entered into contracts to lay several courts, but they did not prove satisfactory, and in October last he ceased to manufacture the court.

He attributed his failure and insolvency to the non-success of the patent tennis court, to having under-estimated the cost of laying these courts, and to trade depression.

INQUIRY.

I should be grateful for advice as to spraying fruit trees. It is my practice to spray in winter with lime-sulphur, and to spray again with lead arsenate when the blossoms are showing. This year, owing to continuous wet weather, it has not been possible to get on the land, and hence the spraying with lime-sulphur has not been carried out. What I desire to know, is whether I can combine the two spray fluids in one operation to be performed just before the blossoms appear, and whether this may be done with safety, not only in the case of Apples and Pears, but also in that of Plums and small fruit (Gooseberries), or whether it will be best in the case of the last-named to use a nicotine spray. *F.*

THE WEATHER.

WEATHER IN FEBRUARY.

The final month of winter was characterised by an exceedingly low mean air pressure, an unusual run of south-easterly winds, and abnormally humid and rainy weather, only one definitely wetter February having occurred during the fifty-two years of Southport observations. For the most part it was also a very mild month, the chief exception consisting of four or five wintry days, which commenced on the 18th and were of a raw and trying description. The mean temperature of the complete month was 42°, or 2¼° above the average for fifty years. There were 53 hours of sunshine, or a deficiency of 15 hours. So much as 3.88 inches of rain was measured at Hesketh Park, the normal being exceeded by 1.79 inch. Days with rain numbered 24, or nine more than the average. Humidity also was very high. No gales occurred, nor was there any thunder. Ground-frosts were limited to seven nights, and only on three dates did any frost invade the shade. Fog and hail were each reported once only. Snow fell twice, but never lay to a depth of quite two inches, and on both occasions it melted away the same day it fell. *Joseph Baxendell, The Fernley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

What is known in Meteorology as a "rain spell" is fourteen successive days on each of which a measurable quantity of rain is collected. While such rain spells are of infrequent occurrence in this district, the casual observer of weather might be pardoned for concluding that the month under review, with its 25 rainy days, provided one, yet it did not, for the rainless days came at such intervals as to break the "spell." Although February as a whole was a disagreeable month, there were some pleasant parts; thus on three days, at the time of observation "clear sky" was recorded, while the 4th and 9th registered each approximately 7½ hours of sunshine. The mean temperature was relatively high, the first few days being very mild, with a cold spell from the 17th to 21st. The total rainfall was 4.89 inches for 25 days, against a normal of 1.88 inch for 14 days, the wettest day being the 27th with a fall of 0.60 inch; snow fell on 3 days. There were 21 sunless days in the month, the remaining 7 days yielding an aggregate of 30.5 hours, a daily average for the month of 1.1 hour and a percentage of 11. The mean temperature was 39.3°, being almost 2° above the normal, with a mean maximum of 42.7° and a mean minimum of 36°. The highest maximum of 54° was registered for the 1st, and the lowest minimum of 30° for the 21st. On three nights the temperature fell below the freezing point. The mean minimum on the grass was 34°, with a lowest of 28° on the 23rd; there were seven nights of ground frost. At 1 foot deep the soil temperature showed considerable fluctuations, rising to 42° on the 3rd and falling to 38°. Strong winds were frequent, chiefly from the east and south. *John Davidson, Meteorological Station, St. Andrew's Provincial Committe, Training College Gardens, Mayfield, Dundee.*

ANSWERS TO CORRESPONDENTS.

Arundina chinensis: *S. J. B.* Arundina chinensis, a native of China and the Himalaya region, has been known for nearly a century; it has been cultivated in small quantity for the greater part of that period, and is now occasionally met with in gardens. In November, 1895, Sir Trevor Lawrence obtained a Botanical Certificate for the plant from the Royal Horticultural Society, when showing it under its synonym, A. Philippi, Reich. f. The species varies in both plant and flowers in different localities, but all the forms have the same general characters. A. chinensis, A. bambusaefolia, and other allied species are terrestrial plants of tufted habit, bearing slender reed-like stems 2 to 3 feet high, with lanceolate leaves 4 to 6 inches in length, and arranged regularly on each side of the stem. The few-flowered inflorescence is terminal, and practically a continuation of the upper part of the stem. The flowers are from 1 inch to 2 inches across, and coloured rose or light rosy-mauve. The plants should be potted in a mixture of fibrous peat and yellow loam fibre, with a sprinkling of Sphagnum-moss, the crowns of the plant being kept above the surface of the material. A. chinensis and its allies grow well in an intermediate Orchid house, plant stove or heated conservatory. A liberal supply of water should be given until the growths are completed and flowering commenced, after which a restricted supply and cooler temperature should be provided until growth begins again. To raise the seeds, sow a portion on the surface of the compost of any suitable Orchid plant you may have to set aside in a moist, shady place, where it will not be disturbed, but can be carefully watched; or make up two or three seed pans with finely-
sifted Orchid peat and Sphagnum-moss, o
Orchid compost, which you can purchase
Soak these well before sowing, and in two o
three days sow the seeds on the surface, an
place the pans on inverted pots in a warm
seed-raising case or propagating frame. If th
seeds are to be imported they should b
dispatched in sealed tubes.

Designing Town Gardens: *S. S.* The appro
priate charge for furnishing a design for
town garden and for supervising its carry
ing out would, naturally, vary considerabl
according to the size of the garden and th
amount of work entailed in drawing the plan
But, as a basis, we would suggest that th
charge for a plan for the average villa garde
should be two to three guineas. Supervisio
by good architects is usually based on th
total cost of the work, and seems to rang
from 7 per cent. upwards to so much, i
cases where considerable time is required,
40 per cent.

Establishing Blackberries: *J. W. W.* Blac
berries root very freely from the tips of th
branches, forming stolons, as in the case
Loganberries. If you search the hedgerows
districts where Blackberries are plentiful y
should be able to obtain a supply of you
plants rooted in this way, and they would
much easier to obtain than by rooting cuttin
in flower pots. If the bush you refer to
near at hand bend some of the shoots dov
and peg the tips in the ground; you will fi
they will root with freedom.

Gardening Society Committee: *D. F. H.* Th
chairman of your committee would
entitled to vote in the ordinary way, and,
the case of the number of votes being equ
on both sides, to give a casting vote. Th
general secretary, unless he is a paid office
is usually entitled to vote on a committee.

Landscape Architect: *A. H.* Your expe
ence as foreman of a farm would be scarce
likely to fit you for the work of designi
gardens, unless you have a natural abili
for such work. You would scarcely be like
to become proficient by studying books on t
subject, and your best plan would be
secure employment in a firm whi
specialises in garden architecture.

Names of Fruit: *T. G. B., Leicester.* Pe
Uvedale's St. Germain.

Names of Plants: *G. P.* 1 and 6, Cupress
Lawsoniana; 2 and 5, Thuya dolabrata;
Cupressus macrocarpa; 4, Cupressus nootk
tensis; 7 and 9, Thuya plicata; 8, Cupress
pisifera var. plumosa; 10, Cupressus Lawso
iana var. lutea; 11, Juniperus chinensis v
aurea; 12, Cupressus pisifera var. plumo
aurea; 13, Drimys Winteri.—*E. S.* 1, 2 and
Saxifraga apiculata; 4 and 6, S. Elizabetha
5, S. sancta; 7, S. Paulinae; 8, specimen t
scrappy to identify; 9, S. burseriana: 10.
ligulata—*H. W.* Narcissus Beauty.—*L. S.*
Tussilago Farfara.

Propagation of Viburnum Carlesi: *Mrs.*
Cuttings of this Viburnum root readily duri
July in a propagating frame with a litt
bottom heat. The new growths of the ye
are by this time moderately firm on plan
outside. By growing a plant or two und
glass, as is often done with this fragra
Viburnum, the cuttings are ready to inse
earlier, and a larger percentage of plants
obtained from indoor than from outdo
cuttings. Most of the plants propagated
the Continent are grafted on Viburnum La
tana or V. Opulus.

Pronunciation of Plant Names: *Stude*
The Pronunciation of Plant Names, pu
lished by the *Gardeners' Chronicle,* is out
print, but you might be able to obtain a co
from a second-hand bookseller. We know
no other work of this nature, but there is
pronouncing dictionary in *Nicholson*
Dictionary of Gardening.

Communications Received.—A. L.—H. A. J.—
S.—J. P. C.—J. S.—A. L.—A. O'L.—Cloe—F. E.
J. C. W.—G.—A. T. S.—G. H. C.—W. L.—C. F.
—A. B. S.—W. C.—C. E.—A. A.—F. R.—W. W.

THE
Gardeners' Chronicle
'o. 1892.—*SATURDAY, MARCH* 31, 1923.

CONTENTS.

lpine garden, the—
  Primula denticulata . 173
ulb garden, the—
  Crocus Tommasinianus 175
  White Crocuses .. 175
Dewar, Mr. Alexander, presentation to .. 169
'oreign correspondence—
  Compost soil . .. 176
'Gardeners' Chronicle" seventy-five years ago 170
hent Exhibition, British section of the .. 170
ladioli, origin and evolution of summer-flowering 177
revillea asplenifolia .. 178
Hardy flower border—
  Geranium anemonaefolium 173
  Lupins 173
Indoor plants—
  Cannas. 171
Kew gardener, sad death of a former 170
Kewites and the International Congress at Amsterdam 170
andscape gardening for women, American school of 169
Le Chrysanthéme ".. 169
Obituary—
  T. J. Grey 180
Odell, Mr. J. W. .. 170
Orchid notes and gleanings—
  Laelio-Cattleya Beauty 171
Plants new or noteworthy—
  Rhododendron sutchuenense 171
Pollen, ... 169
Potato flowers degeneration in and causes of sterility, ... 176
Scholarships for rural works, agricultural .. 169
Shrubs, some Californian 174
Societies—
  Manchester and N. of England 180
  Newcastle and Dis. Hort. 180
  Royal Horticultural . 180
"The Microscopical Theatre of Seeds" 178
Trees and shrubs—
  Berberis vulgaris .. 177
  Fendlera rupicola .. 177
  Magnolias 177
Trees, buttressed and stilt-rooted 174
Vegetable garden—
  Peas 176
Week's work, the .. 172

ILLUSTRATIONS.

'endlera rupicola, flowering shoot of 177
)dell, Mr. J. W., portrait of 170
'rimula denticulata in the rock garden 173
hododendron sutchuenense ; foliage and inflorescence of 171
'ree : a buttressed tropical, broken by a storm, 175 ; a typical swamp-forest, stilt-rooted 174

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verage Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 44.1°.

ctual Temperature:—
Gardeners Chronicle Office, 5, Tavistock Street, Covent Garden, London, Tuesday, March 27, 10 a.m. Bar. 30.2; temp. 63°. Weather—Sunny.

On Pollen. All new knowledge on the subject of pollen is likely to be of interest not only to he plant physiologist, but also to the plant reeder. For example, it happens not inrequently that promising crosses between ifferent plants cannot be made because of nability to secure the ripe and viable pollen f one species at the time when the stigmas f the other are ready for pollination. Hence becomes important for the hybridist to now how best pollen may be stored and ow to test stored pollen to ascertain hether it has retained its powers of gerination. Recent experimental studies* of ollen by Mr. H. E. Knowlton, which have een directed to these ends throw new light n the conditions which serve to preserve e life of pollen and on the reasons for the ften rapid mortality of pollen. The plants sed for experiments were Antirrhinum—hich has a relatively long-lived pollen, and aize—the pollen of which lives for an exedingly brief time. Apple pollen was also sted. The author points out that although is often easy to cause pollen to grow on tificial media, none of the media yet disvered is altogether satisfactory. A sugar lution is usually employed for artificial rmination, and it is interesting to observe at the pollen of some species is so ardy," that it will grow in sugar solution f very varied concentration or even in water alone. In more difficult cases the addition of a little gelatine or agar appears to assist pollen-germination. Some species are on the contrary very sensitive, and only germinate when the sugar solution is of a definite concentration. The pollen of Gramineae belongs to this category, and in the case of Maize, will only germinate in a ten per cent. solution of cane sugar, to which 0.7 per cent. agar has been added. In some cases germination in artificial media only takes place if a portion of the stigma of the flower is added to it. Although the length of life of pollen grains is often to be measured by days, the pollen of the Date Palm almost deserves the designation of "perennial," for the Arabs make a practice of keeping branches of staminate flowers in paper bags in dry, cool places for use in pollinating the female flowers in the following year. It has, indeed, been averred that Date pollen retains its viability for fifteen years. At the other extreme is Oxalis Acetosella, the pollen of which is ephemeral—enduring but for one day. Between these extremes stand Antirrhinum majus, with pollen which lasts for forty-three days, and Picea excelsa, whose pollen may be kept for eighty days. Apple pollen is long-lived; stored in a dry place it may be still capable of germinating at the end of six months. The moisture content of the atmosphere in which pollen is stored has a marked effect on its viability. Generally speaking thirty per cent. humidity or a quite dry atmosphere is best. When conditions are suitable germination, that is the throwing out of the pollen tube from the grain, may take place with astonishing rapidity; for example, in the case of Antirrhinum majus, within two or three minutes of immersion of pollen in a sugar solution of appropriate strength. Of accommodating pollens that of the Apple is remarkable. It may show slight germination, one per cent. in a 2.5 per cent. solution, and the percentage of germination goes on rising with increasing concentration until the medium contains seventeen per cent. of sugar, and even in thirty per cent. twenty-five out of every hundred pollen grains grow. No less remarkable than the long life of certain kinds of pollen is the length of the period during which stigmas may remain receptive. Thus, in Antirrhinum, a stigma may retain some of its power for three weeks. Of the conditions which are favourable to pollen viability, low temperature appears to be of importance with decreasing storage temperature; there is at all events with Antirrhinum pollen an increase in longevity. Stored at — 18° C. to — 30° C. pollen of this plant remained capable of fertilisation for one hundred and sixty-one days, whereas at 0° C. the viability of the pollen only lasted a month. A high percentage of carbon-dioxide in the air is said also to preserve pollen. In pure carbon-dioxide Antirrhinum pollen remains viable for a month. Why pollen generally should die so soon remains still a mystery. It does not die of desiccation nor of exhaustion; apparently, as with seeds, a slow change in its proteins goes on—the end term of which is incompatible with life. This is a subject for the biochemist: the gardener who practises plant breeding is more concerned in knowing how pollen may best be kept alive.

Presentation to Mr. Alexander Dewar.—On the occasion of his retirement from the position of gardener at Dankeith, Kilmarnock, a number of friends joined to make Mr. Alexander Dewar a handsome presentation in recognition of the many services he has rendered to local horticulture, particularly in connection with the flower shows in the Kilmarnock district. In the unavoidable absence of Mr. Priest, of Edlington Gardens, Mr. Muir, of Troon, presided, and the presentation was made by Mr. Melville, Cambusdoon. This consisted of a wallet of Treasury notes, together with several articles in silver presented to Mrs. Dewar. Both Mr. Muir and Mr. Melville gave expression to the very high esteem in which Mr. and Mrs. Dewar are held in the district, and the hope was expressed that they would be spared to each other for many years to enjoy a well-earned retirement. After Mr. Dewar had suitably acknowledged the gifts and indulged in a number of interesting reminiscences, Mr. and Mrs. Dewar entertained the friends who made the presentation.

"Le Chrysanthème."—The issue of this publication for December-January has been delayed by a printers' strike at Lyons. The contents are unusually interesting to members and others who take pleasure in the cultivation of the Chrysanthemum. Over eighty new members have been added to the list since the last issue, and there is a special list of members added to this number by which it appears that the Society now has over 900 members, inclusive of affiliated societies, each of which is counted as a member. Reports of committee meetings and of the Congress held in Paris last October are given, and the text of various speeches and papers made or read in connection with that gathering will be perused with interest. They were by M. Viger, M. Blot, M. Chantrier, Dr. Chifflot and others. There are also reports of local Chrysanthemum shows, viz., La Rochelle, Angoulême and Anzin. The rules of the Society and Floral Committee regulations are added together with the final instalment of the History and Work of the Society since its formation twenty-seven years ago. There are several illustrations—one, a general view of the show in the Palmarium at Paris last October, is quite typical and better printed than is usually the case. It has been decided that this year's Congress of the French Chrysanthemum Society shall be held at Limoges.

American School of Landscape Gardening for Women.—The Lowthorpe School, at Groton, Massachusetts, situated in a lovely village thirty-six miles from Boston, has been established for the purpose of training women in the art and practice of landscape gardening. A staff of very able instructors has been provided, and includes Messrs. F. S. Kingsbury, H. H. Blossom and R. S. Sturtevant, of Harvard. A new and novel departure is the institution of a special course of lectures designed to meet the needs of lady amateur gardeners, and this is planned to cover subjects of special interest to such students; it suggests a line of study which might prove popular and useful in this country. The American course commences on April 3, and continues to May 17; arrangements have been made to accommodate students in the village, close to this school of landscape gardening.

Agricultural Scholarships for Rural Workers.—The Ministry of Agriculture and Fisheries announces that a number of scholarships under the scheme approved last year for establishing scholarships and maintenance grants for the sons and daughters of agricultural workmen and others are offered for award for the session commencing in October next. The scholarships are provided out of the special fund for agricultural development voted by Parliament under the Corn Production Acts (Repeal) Act, 1921, and are limited to the following:—(a) Sons or daughters of agricultural workmen; (b) sons or daughters of other rural workers, including bailiffs and smallholders, whose financial circumstances are comparable with those of agricultural workmen; (c) *bona fide* workers in agriculture, whose financial circumstances and those of their parents or guardians are comparable with those of agricultural workmen. The scholarships are of three kinds, and are briefly described below. The maximum number which will be awarded in each grade, if sufficient suitable applicants are forthcoming, is also given:—(1) Ten Class I. scholarships for three years, with the probability of extension for a fourth year in suitable cases, tenable at Oxford,

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* "Studies in Pollen, with Special Reference to ngevity." Cornell University Agricultural Experient Station, *Memoir 52*. January, 1922. Ithaca, New ork. Published by the University.

Cambridge, or other Universities, enabling students to attend degree courses in agriculture; (2) 10 Class II. scholarships for two years tenable at certain University Departments of Agriculture and agricultural colleges; (3) a number of Class III. scholarships, probably not exceeding 150, tenable at farm institutes and similar institutions for courses of one year's duration or less, in agriculture (or horticulture, or dairying, or poultry keeping). Candidates for Class I. and Class II. scholarships must be at least 17 years of age on June 30, 1923, and must satisfy the Selection Committee that they have reached a sufficiently high standard of education to derive educational benefit from the courses of instruction. In the case of Class I. scholarships, preference will be given to applicants who have passed an examination which entitles them to enter a University. The standard of general education required for Class III. scholarships is not so high as that for Class I. or Class II., but candidates will be required to furnish evidence of their acquaintance with practical agriculture (or horticulture, dairying, poultry keeping, etc.), and should normally have been engaged for at least a year in all in such practical work. Candidates for this class of scholarship must be at least 16 years of age on June 30, 1923. Applications should be lodged with the Secretary, Ministry of Agriculture and Fisheries, 10, Whitehall Place, London, S.W. 1, not later than May 14,

Kewites at the International Congress at Amsterdam.—Mr. Th. J. Dinn, 22, Madoerastraat, The Hague, will be pleased to hear from Kewites who propose to visit Amsterdam on the occasion of the Horticultural Congress, September 17-23, 1923, so that, if possible, a reunion may be arranged.

Retirement of Mr. J. W. M'Hattie.—In the ordinary course of events, Mr. J. W. M'Hattie, Superintendent of the Edinburgh Parks, is due to retire on December 12, this year, but the Parks Committee of the Edinburgh Council recommends that his retirement shall not take effect until six months later, and that, meanwhile, steps be taken to fill the position, the person appointed to act as assistant to Mr. M'Hattie for a few months previous to taking full charge. The salary recommended for the new appointment is £500 per year.

British Section of the Ghent Quinquennial Exhibition.—As a result of efforts made by the Exhibition Committee of the Chamber of Horticulture, a successful British Section at the Ghent Exhibition in April is now assured, indeed, it is anticipated that the combined British display will be as interesting and effective as the one contributed to the Antwerp exhibition in 1921. The area to be occupied by the British section will be rather larger than that of the Royal Horticultural Hall, and the principal subjects will be Carnations, Roses, Heaths, Hydrangeas, Narcissi, Tulips, Sweet Peas, Clematis, and alpine gardens, together with paintings and coloured illustrations of flowers. Orchids will be accommodated in a warmer structure. It is estimated that the cost of conveying and arranging the British display will be about £250, and towards this sum the Royal Horticultural Society has promised £50, with a guarantee of an additional £50 if needed. Mr. Geo. Monro, 4, Tavistock Street, Covent Garden, W.C.2. is the hon. treasurer for the exhibition fund. The exhibitors who have promised their support to date are:—Messrs. W. Artindale and Son, Sheffield, Primulas; Messrs. Allwood Bros., Haywards Heath, Carnations; Messrs. R. H. Bath, Ltd., Wisbech, Narcissi; Mr. Wm. Bunn, Malvern, Pelargoniums; The Chalk Hill Nurseries, Reading, Pansies; Messrs. Charlesworth and Co., Haywards Heath, Orchids; Mr. G. Clarke, Leighton Buzzard, Carnations; Sir Jeremiah Colman, Orchids; Mr. C. Englemann, Saffron Walden, Carnations; *The Gardeners' Chronicle*, Ltd., Tavistock Street, W.C., coloured and half-tone illustrations and books; Messrs. T. R. Hayes and Son, Keswick, rock garden; Mr. Walter Hemus, Hampton, Carnations; Mr. E. J. Hicks, Twyford, Roses; Mr. Milton Hutchings, Hillingdon, Heaths; Mr. H. J. Jones, Lewisham, Hydrangeas; Mr. F. Ladds, Swanley, plants; Mr. J. MacDonald, Harpenden, dried Grasses; Mr. H. F. Mason, Hampton, Carnations; Messrs. Geo. Monro, Ltd., Tavistock Street, W.C., flowers and fruit; Mr. W. H. Page, Hampton, Carnations; Mr. L. R. Russell, Richmond, Clematis; Mr. W. Sherwood, Hampton, Carnations; Mr. T. J. Shorthouse, Hampton, Carnations; Messrs. Stuart Low Co., Enfield, Carnations and Orchids; Miss Walker, London, floral paintings; Mr. W. E. Wallace, Eaton Bray, Carnations; Messrs. Watkins and Simpson, London, Stocks; Messrs. Watson and Son, Dublin, Genistas; Messrs. White and Son, Spalding, Narcissi; Messrs. G. G. Whitelegg and Co., Chislehurst, rock garden; and Mr. T. H. Windle, Covent Garden, Sweet Peas.

Mr. John W. Odell.—A man of wide experience and great capability, Mr. J. W. Odell is nevertheless an extremely modest and retiring gentleman and during recent years has not come so prominently before the horticultural world as was the case before the war. He served his apprenticeship as a gardener with Mr. George Stanton at Park Place Gardens, Henley-on-Thames, and he could scarcely have had a better training than Mr. Stanton gave to his young men. From 1880 to 1889 he acted as assistant to his father on the Barrow Point Estates at Pinner, and had special charge of the gardens. In 1883 he visited Georgia, U.S.A., for a period of about seven months, to superintend the planting of fruit trees. In 1889 he was appointed steward to Mrs. Brightwen, of The Grove, Stanmore, whose gardens were for a long period noted for their interesting collections of plants, and notably those of a botanical character. In 1906, Col. Wilfrid Ashley, M.P., bought The Grove after the death of Mrs. Brightwen, and Mr. Odell acted as steward for him, and also engaged in extensive forestry work on his behalf on the Broadlands Estate, Romsey, and carried out these onerous duties for a period of seven years. In 1913 he was appointed by the late Rt. Hon. Sir Ernest Cassel to supervise his English estates, a post Mr. Odell continues to hold under the Trustees of the Cassel estate. Mr. Odell is a fully qualified teacher under the Science and Art Department, now the Imperial College of Science, and was for some time lecturer in agriculture, botany and horticulture to the Educational Committee of the Hertfordshire County Council. For twenty years he has been a member of the Scientific Committee of the Royal Horticultural Society, and for several years was examiner for the Society in connection with the Parks and Ope Spaces and the School Teachers' examinations he has also lectured on several occasions befor the R.H.S. During the war period he wa chairman of the North West Middlesex Agri cultural War Committee. It is a matter fo regret that Mr. Odell's onerous duties no allow him but little time to take part in th botanical and horticultural work he loves s greatly.

MR. JOHN W. ODELL.

Sad Death of a Former Kew Gardener.—W deeply regret to learn from the *Kew Bulleti* of the sad death of Mr. Richard Arnold Dummer, as a result of a motor accident in Uganda The late Mr. Dummer was a student gardene at Kew from May, 1910 to June 1911, havin previously worked in the Municipal Gardens Cape Town. Mr. Dummer, besides being a capable gardener, was a clever botanist and assiste in the preparation of *Trees of Great Britain* and he published several papers in the *Journa of Botany*. Since 1914 he had been engage with a rubber company at Uganda.

Local Horticultural Societies.—The Hull and East Riding Chrysanthemum Society is reviving its annual exhibition, and has arranged for two-days' Chrysanthemum show in the local City Hall, on November 21 and 22. The problem o making the show a successful one is receiving the close attention of the Committee, for it i the desire of the Society to attract leading growers from all parts of the country in the open classes. The Right Hon. T. R. Ferens P.C., J.P., has been elected President of the Society; Alderman W. Hakes, chairman of the Executive Committee; Messrs. J. Milner and T. Fawley Judge, Hon. Treasurers; and Messrs. H. Harland and J. White, Hon. Secretaries.—Southgate Rose Society will hold its annual exhibition on June 23 in the hall attached to the Congregational Church, Fox Lane.

Appointments for the Ensuing Week.—Sunday, April 1.—Wakefield Tulip Society's meeting. Monday, April 2.—Sholing Daffodil and Spring Flower Show. Tuesday, April 3.—Sevenoaks Gardeners' Chrysanthemum Society's meeting; Royal Caledonian Horticultural Society's meeting. Wednesday, April 4.—Wimbledon and District Gardeners' Society's meetings; Lewes and District Horticultural Society's meeting. Thursday, April 5.—Huntingdon Daffodil and Spring Flower Show; Manchester and North of England Orchid Society's meeting; Royal Horticultural and Arboricultural Society of Ireland Spring Show (two days); Jersey Gardeners' Society's Spring Show. Saturday, April 7.—Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Beech-mast as Fuel.* I have been using Beech-mast as a substitute for coal in the forcing houses during the present season, preferring it to wood, as there is no labour in cutting it up ready for use as in the case of wood; and in a part of the country where coal is 30s. per ton, it is desirable to turn to the best account anything which can be used as fuel. I have hitherto used no coal whatever but I, however, consider that a mixture of Beech-mast and coal would make a good and economical fuel in places at a distance from either coal or railway as a means of conveyance. I also find I have a large heap of good ashes from burning Beech-mast, which will be an excellent manure, much superior to coal and not inferior to wood-ashes. Employment is, in consequence, found for women and boys in sweeping up the mast during a season when there is little out-door work for this class of labourers; and when it is considered that, for the sake of neatness in places which are in sight, the mast should be swept up, even if taken to the rubbish-heap, I think that for these reasons the subject is worthy of consideration and trial, on account of its economy, as well as being the means of employing labourers during winter, to say nothing of the neatness produced by keeping the Grass and walks clean. *J. H., March* 21, *Gard. Chron., March* 25, 1848.

INDOOR PLANTS.

CANNAS.

The great improvement effected in these beautiful flowers during the past decade has raised them to a prominent position amongst the best ornamental indoor plants. Many of the varieties have flowers rivalling those of the Gladiolus in size and brilliancy of colouring, whilst the foliage is so elegant the plants would be well worth growing for their leaves alone, and for which reason they are extensively employed in bedding schemes.

Cannas are amongst the most useful plants for the decoration of the conservatory or greenhouse, and are invaluable for grouping in plant houses. They are also well adapted for subtropical bedding in the open during the summer. The varieties embrace many rich and striking colours, ranging from deep golden yellow, rose, white, scarlet, to crimson. They are plants of easy culture and entail no trouble or expense all through the winter. After flowering they should be allowed to go gradually to rest, and when dormant may be placed under the plant stage or in any dry situation secure from frost until the spring, when they should have all the soil shaken from them and be divided. One strong " eye " should be potted in a 4-inch pot, and placed in a warm house. As soon as the plants begin to grow they should be syringed two or three times daily, but the roots should be watered sparingly until the pots are fairly well filled with them, when they should be shifted into 6-inch pots in which they will flower.

Remove any shoots that develop from the root stock in order to throw all the energies of the plant into the flower spike. If large specimens are required shift three or four plants from 4-inch pots into a 10-inch or 12-inch pot, and in this case any shoots that come up from the root stock may be allowed to remain to give a succession of flowers.

The soil should consist of a mixture of good, turfy loam, a little leaf-mould and decayed cow manure, the whole lightened with silver sand. Provide good drainage, for during the growing season and when the plants are well rooted they need liberal supplies of water; when the flower spikes appear the plants may be watered with liquid manure on alternate occasions.

Cannas may also be raised from seed sown in a warm temperature and moist atmosphere. The seed, commonly known as Indian Shot, is exceedingly hard, and should be soaked in tepid water for thirty or forty hours before it is sown. The seed is from four to five weeks in germinating. Many fine varieties may be raised from seed with very little trouble or expense. The species C. indica was introduced to this country in the latter part of the fifteenth century. Very little was done in raising new varieties by hybridisation until the beginning of the eighteenth century; after that period several enthusiasts on the Continent commenced to take an interest in these plants, and raised many new forms. All the cultivated species resemble one another closely in habit, foliage and structure of the flower, but the great improvement made by hybridisation has almost entirely resulted in the species having dropped out of cultivation. Very little has been done in this country in raising new sorts; the principal new varieties of late years have been raised and put into commerce by M. Crozy, of Lyons, and M. Lemoine, of Nancy. The Conard and Jones Co., nurserymen, West Grove, U.S.A., have also raised and sent out many beautiful varieties with brilliant colours and fine foliage.

The following set of handsome Cannas, classed under two groups, is highly recommended: (1) Green leaved varieties—Austria, flowers canary yellow suffused with white and sparingly spotted with brown; Italia, brilliant scarlet with broad yellow margin; Rosa gigantea, deep rich rose; Jules Chretien, rich crimson carmine; Konigen Charlotte, bright red, edged with gold; Madame Crozy, orange red, sparingly speckled with golden yellow; Ottawa, deep rose cerise; Mont Blanc, pure white, and West Grove, coral pink. (2) Dark-leaved varieties—King Humbert, bright orange scarlet, streaked with crimson; William Saunders, extra large flowers of bright scarlet colour; President Carnot, cinnabar red, lightly spotted with carmine; King of Blacks, deep red; Black Warrior, dark maroon; Edouard André, rich orange scarlet, shaded with purple; Duke Ernst, reddish scarlet; Paul Bert, amber yellow, and George Washington, rich velvety crimson. *John Heal, V.M.H.*

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON SUTCHUENENSE.

The opening of another flowering season among the evergreen Rhododendrons adds still more to the interest and value of the beautiful R. sutchuenense first introduced from China in 1900 by Mr. E. H. Wilson when collecting on behalf of Messrs. James Veitch and Sons, Ltd., in Western Hupeh. It is No. 1232 Wilson, of that expedition, and is figured in the *Bot. Mag.* tab. 8362 (1911). In Mr. Wilson's notes he describes R. sutchuenense (Fig. 78) as a common species in the north-western part of the province where it grows to a greater size and has larger leaves than any other species in the district. The plant forms robust bushes up to some 18 to 20 feet high, and 12 feet or more through. The oblanceolate-oblong leaves are 7 to 10 inches long, 1½ to 2½ inches wide, and downy on the mid-rib beneath. The rosy-lilac flowers are open campanulate, 3 in. across, with purple spots on the upper side.

Reverting to my observations on p. 159 with reference to R. praevernum and its likeness to R. sutchuenense, it may be of some value to tabulate the most distinct points of difference between the extreme forms as illustrated in Fig. 74, p. 159, and Fig. 78.

	R. sutchuenense	R. praevernum.
Bush.	Robust, open-branched; only produces few trusses at present.	Flat, close habit; free-flowering.
Leaf.	Rounded at base; 6-10 inches long; mid-rib downy beneath.	Tapering to base, 4 to 7 inches long; glabrous.
Flowers.	Rosy-lilac, purple spots.	White or pink tinted, with prominent wine-red blotch.
	Three inches wide and long, open, campanulate; full, upright truss.	Two inches wide and long; bell-shaped; closer and more flatly arranged.

A. Osborne, Kew.

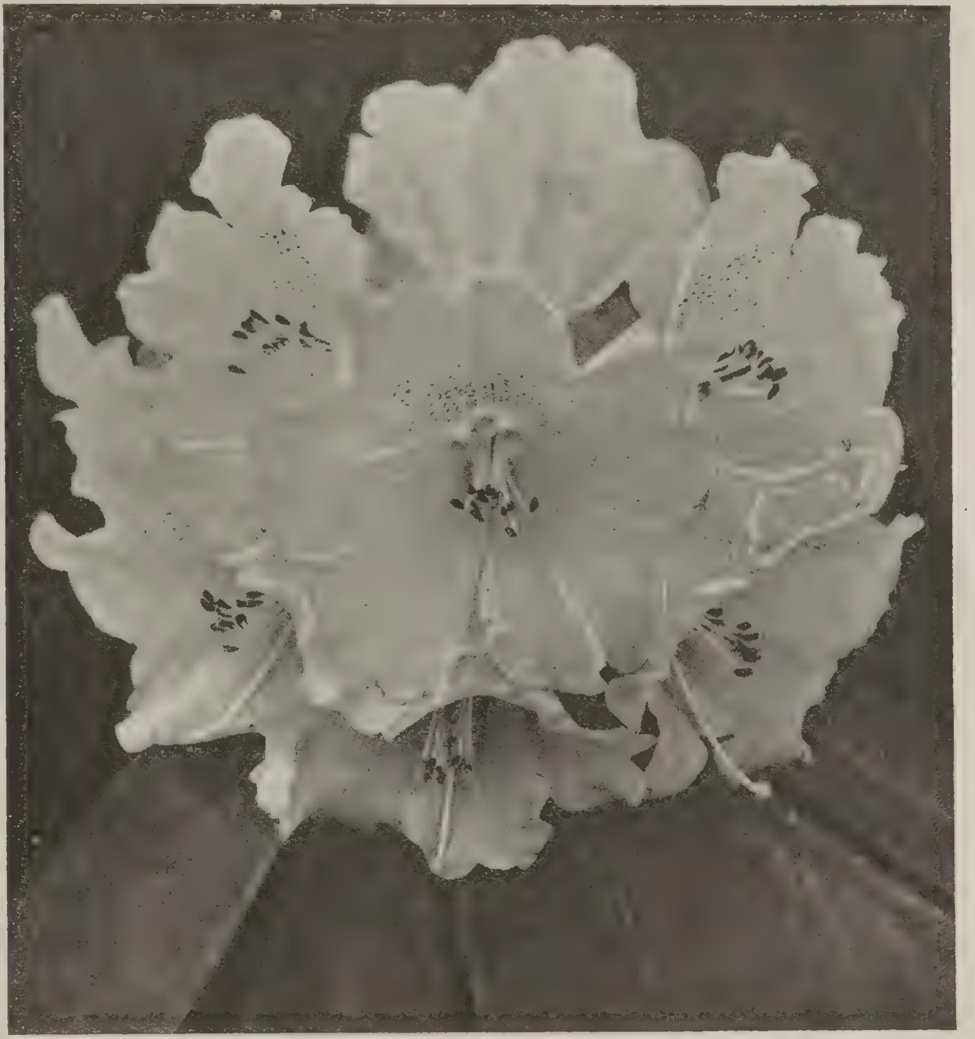

Fig. 78.—Rhododendron sutchuenense.

ORCHID NOTES AND GLEANINGS.

LAELIO-CATTLEYA BEAUTY.

A pretty and interesting cross between the natural hybrid Cattleya Whitei (Schilleriana × Warneri) and their white form of Laelio-Cattleya Britannia alba (C. Warscewiczii × L.-C. Canhamiana) now flowering with the raisers, Messrs. Sanders, St. Albans and Bruges, well demonstrates the influence which well-defined species as primary ancestors have in the progeny of succeeding crosses. In L.-C. Beauty the blush-white sepals and petals partake most of the Laelia purpurata in L.-C. Canhamiana, although they are broader and more flatly displayed. The labellum, also, in the basal part is influenced by L. purpurata, but the prettily arranged front lobe is expanded on each side, the margins being crimped and the violet colour showing distinctly the dark purple veining of the lip of the C. Schilleriana in C. Whitei.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barber, Gadener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Dendrobium.—Many Dendrobiums are in a sufficiently advanced state of growth for repotting. It is not desirable to repot the plants just as they come to hand, but to attend first to those that are about to develop new roots from the bases of the young growths. Some of the stronger growths will attain considerable height before producing roots, and until then the grower should be content to wait, especially if the plant has just passed out of bloom. The plants should be allowed to recuperate, and when new roots are about to develop they should be repotted. Where seedling Dendrobiums are raised, it is advisable to attend to them first, and then follow with the larger and stronger plants which have produced flowers. If done prematurely, there is always a danger of the young growths rotting off just before they develop roots, hence the necessity of careful watering at this stage. A suitable compost consists of equal parts of Osmunda fibre, A1 fibre, and Sphagnum moss, thoroughly cleaned of all earthy particles, and well mixed. Ordinary flower-pots provide suitable receptacles, which should be well drained with either broken crocks or chopped rhizomes.

The Potting of Young Dendrobium Plants.—Vigorous young plants that only need potting on to allow of their further development, and not because the compost is in an exhausted and sour state, should be potted without much disturbance at the roots beyond the removal of a little of the surface compost and the liberating of a few roots around the sides, in order that they may enter the new material quickly. This also applies to larger plants that are in good robust health, providing the compost is in good condition. The most difficult problem is to know what is best to do with plants that show a gradual deterioration. If they are rare or choice varieties and it is desirable to retain them, they are best pulled to pieces; remove all the leafless back pseudo-bulbs, leaving not more than two or three behind the leading one, and then pot them singly in as small pots as possible. The potting should be done rather firmly, keeping the base of the new lead just a little below the rim of the pot. After potting is the most critical time in the whole year, and every inducement should be given the plants to enable them to become re-established quickly; by spraying on all favourable occasions, and making their conditions conducive to speedy growth. Sufficient water should be given to prevent the pseudo-bulbs from shrivelling, but no more, until the roots have well extended and entered the new material. As the season advances and the roots take hold of the compost, gradually increase the supply of water as the days lengthen, and the power of the sun strengthens; during the hottest season of the year never allow them to become quite dry. Choice varieties and rare species may easily be propagated by cutting up the old pseudo-bulbs and dibbling the portions into pans of silver sand, placing them in a hot, moist house. It is advisable to propagate a few plants each year in order that there will be always a stock of young, robust plants to take the place of those that have exhausted themselves by excessive flowering.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Plum Crop Prospects.—The recent cold snap may check the development of outdoor vegetation, and it is much to be hoped that the promise of a bountiful Plum crop may materialise. Many imagine that the present spring is a very forward one, but those who keep records know that it is not so forward as those of recent years. The ground, however, is not very cold, and the sap being well up, vegetation will develop rapidly with warmer days. The clearance of prunings, the digging or ploughing of large orchards, held up by exceptional wet weather, should be completed.

Rejuvenation of Trees.—Too often trees become exhausted through succeeding years of overcropping, and especially Pears. Now is the time to prevent what may prove a promising crop from dropping. The securing of a healthy, well nourished tree will also ward off attacks of insect pests. To this end a dressing of 2 oz. to 4 oz. of superphosphate per square yard of ground surface, or some other suitable fertiliser, should be applied to the older trees or bushes. The material applied should be hoed in. Sulphate of ammonia may also be mixed with the other fertiliser used, and applied at the rate of 1 oz. to 2 oz. per square yard of surface. Some growers prefer to use this fertiliser in the same way as nitrate of soda, after the fruit has commenced swelling.

Spraying.—Those who desire to experiment in exterminating the Black Currant mite, should now deal with the pest. Paraffin emulsion may be used at full strength, or lime sulphur may be applied. These specifics should be suitable as a combined mixture, and serve as a fungicide also. These mixtures should also be used to combat caterpillar on Gooseberries, and insect and fungous pests on all fruit trees. The Plum aphis will be found to have developed with the opening blossom. Shot-hole fungus on the foliage, and leaf curl of Peach trees may be dealt with at an early stage with lime sulphur. Abol is a good proprietary specific, and timely spraying with it will save endless trouble later. The tips of the branches affected by Apple mildew, and which spraying perhaps has not reached, should be cut off and burned, otherwise this disease will soon spread, and cause wholesale dropping of leaves and fruit. For large trees spraying machines are more suitable than knapsack sprayers. One defect makers of spraying machines overlook, is that the leg on which the tank rests is often so placed as to be in the way of the operator moving the machine; the handles are often made too short.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Pavetta caffra.—This South African shrub, with white, Ixora-like flowers, is very useful for the decoration of the greenhouse, and may be readily propagated at this season by means of the shorted, twiggy shoots, rooted in a close case provided with slight bottom heat. During the growing season this plant enjoys an intermediate temperature, but when in flower grows quite well in a cool greenhouse, where it lasts in flower over a long period.

Paullinia thalictrifolia.—This plant has beautiful Fern-like foliage, and is a fine stove climber of moderate growth, the cut sprays being useful for decorative purposes. The plant is seen at its best when trained up a pillar or over a trellis. It may be propagated at present by means of half-ripened shoots inserted in pots of sandy soil and stood in a warm propagating case.

Daphne odora.—This is a very popular plant on account of the fragrance of its flowers, but it is by no means an easy subject to cultivate successfully for any considerable length of time. It is usually grafted on roots of stronger growing species, although this is by no means necessary, as cuttings are not difficult to root now in a close case provided with slight bottom heat. The potting compost should consist of good medium loam, with the addition of fibrous peat and clean, coarse sand. The pots should be well drained, and watering should be carefully done at all times. This small shrub is seen at its best when planted out in a well drained border in a cool conservatory or greenhouse. It is nearly hardy, and in the south-western counties fine specimens are sometimes seen out of doors trained against the warm wall of a plant house.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Winter Onions.—Seedling Onions that have remained in the open through the winter should be planted on well-manured ground at a distance of fifteen inches from row to row and ten inches apart in the rows. Make the plants firm, and do not plant them too deeply. Hoe the ground frequently to keep it clean. These Onions will prove most useful in the autumn.

Seakale.—Cuttings of Seakale made from the old roots may now be planted in rows about 4 feet apart and 2 feet between each clump, which should consist of three plants placed about 6 inches or 8 inches apart in a triangular position. Deeply dug, well manured ground is essential if fine crowns are desired, and the cuttings should be planted firmly with the top just level with the surface. When the planting is finished, place some sifted cinders around each clump. Keep the bed hoed, and should the weather turn hot and dry mulch the soil with stable litter.

Vegetable Marrows.—Sow two or three seeds of Vegetable Marrows in a 3-inch pot, placing them edgeways in the soil. Raise the seedlings in a warm house, and as soon as they appear remove them to cooler quarters, and place a stake to each plant.

Tomatos.—Autumn-raised plants should be placed in the pots in which they are to be fruited, if this has not been done already. Use a good porous compost. Keep the growth tied to the stakes or trellis as the case may be, and pollinate the flowers by hand. Grow the plants in a fairly warm house, but admit air on all bright days. Feed the roots liberally when the pots become filled with them, but not before. Plants raised from seeds sown last month or early in March should be transferred singly to small pots, and placed on a shelf close to the roof-glass.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Peaches and Nectarines.—Trees of these fruits which are in flower should have daily attention in regard to the setting of the flowers with a soft feather brush, and on sunny days the ventilators may be left open for an hour or two longer than in other houses in which the trees have set their fruit. At this particular season the wind is often very cold, although the sun may be shining; it is therefore advisable to allow the temperature of the house to rise somewhat higher than usual to prevent, so far as is possible, cold draughts blowing directly on to the trees. Late houses should be kept open day and night whenever the weather permits. In all cases these later trees should not be allowed to suffer for the want of water at the roots. Just before the flowers commence to open fumigate the house.

Pot Figs.—Those pot Fig trees which are carrying heavy crops of fruit require plenty of water and stimulants. Being gross feeders, the latter should be given liberally at frequent intervals, and, if used occasionally, clear soot water forms an excellent stimulant, but for general use nothing is better than liquid manure from the farmyard tank. An occasional application of Peruvian guano is also beneficial. Where artificial manure is used, it should be of a soluble nature and quick in its action. If the bottom heat is supplied by fermenting material only, it will be necessary to replenish the hot-bed with fresh material at intervals to keep up the required temperature. Where the bottom heat is chiefly supplied by means of hot-water pipes, it is much easier to regulate the temperature, and there is no need to disturb the trees. During the time of flowering it is advisable to withhold the use of the syringe, and it requires a keen eye to note when this occurs. The best indication is a slight opening at e apex of the fruit, with a few anthers otruding slightly. When the fruits approach e ripening stage, a drier atmosphere should maintained, and, for the time being, ringing the trees should be discontinued. ir should be admitted freely whenever the eather is favourable. A sudden rise in the temrature of the house, combined with excessive mospheric moisture, will cause the ripeng fruits to split. The balance of growth ould be maintained by stopping or removing nk-growing shoots. Suckers arising from e base of the tree should be removed, unss they are required to furnish bare spaces. here the fruits are well advanced, a second op of fruit will be showing; these should thinned in good time. The night temperaure should be about 65°, with 10° rise by y without sun heat. Successional pot trees hich are commencing to make active growth ould be grown in a night temperature of ° to 60°, and 10° higher by day. Make the st use of the sun's heat by closing the ouse early, and, when this is done, syringe e trees thoroughly with tepid water. All perfluous side-shoots should be removed to event crowding. The roots of these later ees should also be freely supplied with imulants.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Gladiolus.—The corms of this beautiful bulbous ower should now be planted. In order to btain the best results the ground should be lled deeply, and made fairly rich with well ecayed animal manure. Place the corms from ine inches to twelve inches apart, according their vigour, and set them about five inches eep on light soil, and a little less deeply on eavy ground. In the latter case, it will be ime well repaid to put some sand around each orm as it is inserted. Mixing of colours is ften resorted to when planting Gladioli, and he plants are very attractive when grown in his way, but groups or beds of one colour ive the best effect. In small gardens clumps arying. say, from three to a dozen plants will e ample. In addition to being arranged as bove. Gladioli may be grown to advantage mong dwarf shrubs, such as Ghent Azaleas or Kalmias, also when associated with Galtonia andicans, and for adding beauty to the Paeony ed when the Paeony plants are not in flower, rovided the latter plants are not situated in dense hade. Another planting made in three weeks ime will prolong the season of flowering to the utumn. In making a choice of varieties from he several sections, some of the hybrids of . primulinus should be included; their flowers re very lovely, and the growth rather less igorous than that of the other types.

Primula vulgaris.—By the time these notes ppear, an acre or so of the pleasure grounds ere will be thickly studded with these "earliest urslings of the year," common Primroses—and no floral arrangement by man can, in my opinion, excel such a picture of this modest flower. What is more, the initial expense of roots and seeds is very small, for after the first planting—done now or in early autumn—Nature may be left to continue the work of increase and arrangement. During the past three years. we have allowed such increase to take place here in more than one otherwise bare place, with pleasurable results, and doubtless there are many similar sites which could be furnished with Primroses in this way.

Care of Seedlings.—Directly seedlings are through the soil, they should be gradually accustomed to more light, air and sunshine, and when strong enough to handle—which is usually when two or three leaves have developed extra to the seed leaves—they should be pricked out before they get drawn and spindly. Antirrhinums sown and treated as previously advised have recovered from their removal to other boxes, and will be given cooler treatment. Seedlings of Sweet Peas should be planted out permanently when the condition of the soil will permit.

THE ALPINE GARDEN.

PRIMULA DENTICULATA.

This popular hardy Primula has been in cultivation well over half a century, and is still a great favourite on account of its easy cultivation and early flowering properties. At the beginning of March its globose heads of pale lilac flowers were pushing up, and promised soon to be fully out in bloom. A native of the Himalayas, whence it was first introduced into cultivation in this country, it is also found in Western Yunnan, in China. Forrest met with it in abundance on most of the mountains in that country, in almost every variety of situation from the wettest to the driest, and most barren places. The variation in form and colour is very great, but lilac in various shades is the dominant one. There is a beautiful pure white variety (var. alba), with large flowers, that comes fairly true from seeds if kept away from the lilac one when in flower. One of the best is var. pulcherrima, with good-sized heads of deep purple flowers. The Chinese form, with rosy-lilac flowers, was figured in the *Gard. Chron.* of April 26, 1913, p. 264, under the name of P. pseudo-denticulata. Its chief distinction is that the upper part of the flower scape is thickly coated with a white farina.

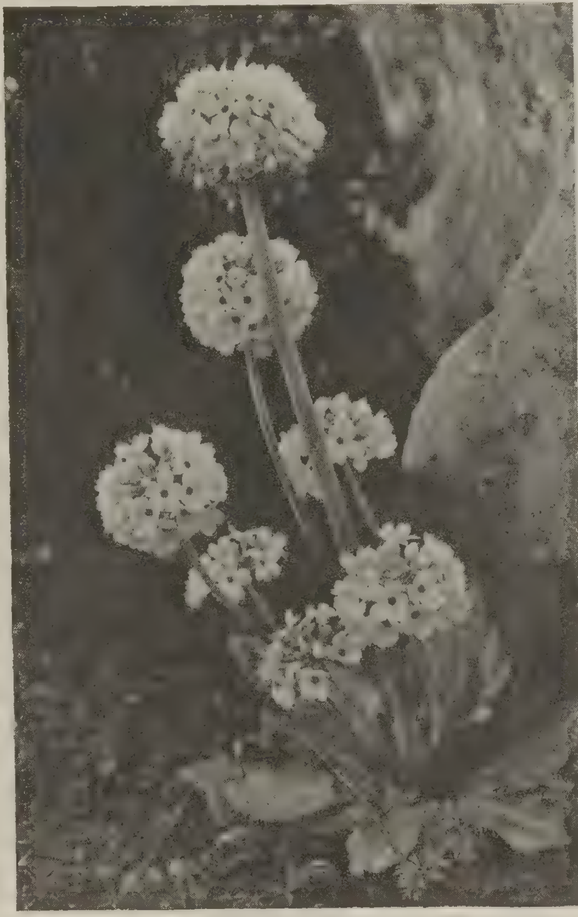

Fig. 79.—Primula denticulata in the rock garden.

P. cashmiriana is a form of P. denticulata, differing only in its more compact heads of smaller flowers, while the under sides of the leaves are covered with a golden meal. Both these Primulas grow well in a moist, shady border, in good loamy soil. In such situations they will establish themselves, for self-sown seedlings come up freely round about the old plants. For planting in the Fern border, open woodland or on the margins of streams, both will be found useful. As with other Primulas, the seeds, if allowed to become too dry, take same time to germinate; fresh seeds, however, germinate freely and seedlings may be raised in a cold frame, or in a little heat. *W. Irving.*

HARDY FLOWER BORDER.

LUPINS.

Lupinus polyphyllus, the old garden Lupin, may now be obtained in many shades as a result of selection and hybridisation; varieties in pink, rose, white, and other colours are almost endless.

The plant is a perennial, and grows about 18 inches high. The seed may be sown during the next few weeks, and the seedlings will flower next year, but a few will possibly bloom in the year of sowing. They will not come entirely true from seed, but all will be found interesting and many exceptionally beautiful. Moerheimii is a very pretty variety of a rose shade.

The Tree Lupin, Lupinus arboreus, is, to my mind, much to be preferred to the herbaceous type. Its growth is much taller and the flowers are held more loosely together. This is likewise a perennial, and in a mild season will retain its foliage and remain green throughout the winter. It may be had in beautiful cream and yellow shades, and the flowers are very fragrant.

Lupinus arboreus is a valuable bee plant. It forms a bush 2 feet or 3 feet high, and does best in a well-drained, sandy soil. There is no difficulty in raising a stock from seed, and, given one plant, many more will later on be found around it from self-sown seedlings. Snow Queen, white, and Somerset, yellow, are two good named sorts.

Seed of the annual Lupins sown now will furnish flowering plants by the summer, and these will be much appreciated. *T. D. T.*

GERANIUM ANEMONAEFOLIUM.

Though a native of the Canary Islands, Geranium anemonaefolium is apparently sufficiently hardy to withstand our winters in all but the bleakest localities. This is the more remarkable since G. anemonaefolium, unlike so many members of the genus in cultivation, is not only evergreen, but produces its leaves between autumn and spring. These leaves are large, deeply-cut and glossy green, and they rise on stiff, straight stems from a short foot-stalk, giving the plant some resemblance to a small fan-leaved Palm. The flowering shoots appear from the central foot-stalk in the early summer, and, standing rigid and clear of the foliage to the height of about 2 ft. or more, bear at the tips of their many short branches very beautiful flowers in pairs. These are rather more than 1 inch in diameter and of a lovely satiny rose-colour, which darkens to a deep crimson eye. The stamens are a vivid crimson, and the whole of each flowering stem is thickly covered with silky hairs which glisten with iridescent hues. The blooming season extends to the late summer, and the plants set seed freely.

Seedlings of G. anemonaefolium frequently appear around the parent plant in certain gardens, and they need about three years to come to maturity. This species should not be confused (as it has been in some quarters) with G. Lowii, nor can it be described as other than a true perennial.

So far as my experience goes, Geranium anemonaefolium will thrive in any average garden soil that is well drained. A little shade from the full noonday sun is desirable, and extremes of drought and moisture should be avoided. Geranium anemonaefolium is illustrated in *Bot. Mag.*, tab. 206, where it is stated the species was introduced in 1778. Its distinctiveness, unquestionable merit and easy culture should ensure a wider popularity for this fine species than it now enjoys. *J.*

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BUTTRESSED AND STILT-ROOTED TREES.

A FEATURE of high forest trees in Africa is the greatly strengthened base they develop. It might appear at first that where the growth is so dense, there is little danger of storms uprooting a tree. A first experience of an African wind storm, particularly if one is in the forest at the time, will soon dispel this idea. Indeed, I know of no more terrifying experience than a bad storm in the night whilst camped in a forest. The great trees rise branchless, for 100 ft., and a rocking of the crown at that height will exert an enormous leverage on the roots. During such a storm, the whole forest canopy will sway until it seems as though everything will be flattened like corn before rain. Tropical trees rarely drop limbs as do our Elms or Beeches, but a breakage means a snap of the trunk above the buttresses, never near the crown.

The buttresses are developed on most trees in dry forest (Fig. 81). A forest giant may have as many as six, and these may extend to ten feet from the trunk, tapering away at ten feet up from the base. A buttress may be one foot thick at its thinnest part. Smaller trees will have buttresses of less strength, but even trees of only one foot diameter will have some such provision. The result is that it is extremely rare to see a tree blown out by the roots. It is, nevertheless, common enough to come across a large tree broken above the buttresses. It is clear, however, that a wind strong enough to break a tree at 15 ft. from the ground would much more easily uproot a similar tree, unless it were specially adapted to withstand the storm.

The buttress is, as I have stated above, a development of dry-forest trees, but in swamp forest quite a different adaptation is evolved. Here we find the stilt-rooted trees. The trunk is seen supported by a large number of "stilts" (Fig. 80) which branch and thicken with age. In soft ground these give a much greater support than would a solid buttress, of which they are a modification. Nature here confirms the practice of engineers in driving piles into soft earth to secure a foundation. Such a tree appears as if the soil had been removed from its roots, or the whole tree lifted bodily up and placed on the surface of the ground.

I do not, of course, contend that the same species of tree will develop either buttress or stilt-roots, according to the position in which it finds itself. The same species of tree will never be found in the different types of forest, but, as practically every species growing in dry forest is buttressed, so most species of the swamp forest will be found to be stilt-rooted. All agree in being supported in one way or the other. *E. Brown, F.L.S.*

SOME CALIFORNIAN SHRUBS.

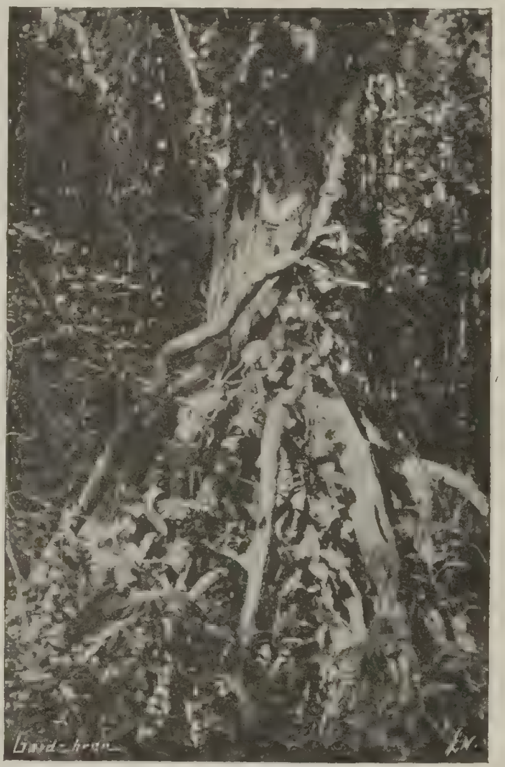

FIG. 80—A TYPICAL SWAMP-FOREST, STILT-ROOTED TREE.

Since many, perhaps most, Californian shrubs known to us are natives of hills where occasional frost is not unknown, they are admirably adapted for cultivation in the milder parts of this country. One of the most notable of these is the Tree Poppy, Dendromecon rigidum, which will send up to the height of 6 feet to 8 feet, in a single season, elegantly tapered, arching wands sparsely furnished with grey-green, Willow-like leaves. The flowers, which are fragrant and about 2 inches across, are a rich golden yellow, with a conspicuous tuft of orange stamens in the centre. This handsome plant has withstood hard frost here without injury, but it succumbed to the very severe and prolonged frost early in 1917, when over 20° were registered for several days. It is probable, however, that with good root protection D. rigidum might be grown in many places usually considered too bleak for it, since it springs up with remarkably rapidity if cut back to the base in spring. If some of the old wood is left, this shrub will bloom here from spring to late autumn. It is grown in rather poor, stony soil, in full exposure. In California I have seen it flourishing in the crevices of rocks.

Fremontia californica also succeeds in thin, shaly soil in this garden, a specimen of 7 feet in height being about as many years old. The dull, green, leathery leaves, 1 inch across and lobed like those of the Fig, are, in common with the young wood, clothed with a rusty tomentum. They are retained throughout the winter, and at almost every leaf axil is produced, about midsummer, a large, deep yellow, bowl-shaped flower which contains innumerable stamens. These blossoms remain on the branch for a long while, and, more often than not, there is a small second crop of blooms in the autumn. What appears to be a form of this species, with flowers of a deeper, more bronzy gold, has lately been introduced under the name of F. mexicana.

Many of the Californian Lilacs (Ceanothus) are first-rate subjects for grouping on a sunny bank in light or rocky soil where the climate is not too severe, and, grown in this way, they appear to much better effect than when against a wall

Setting aside the whole of the C. azureus section, which is of Mexican origin, I think the two best species for the purpose indicated are C. thyrsiflorus, with deep but clear blue flowers in clusters, and C. divaricatus, which has flowers of a smoke-blue or cool lavender shade. But it is difficult to make a selection from a number of species, each of which has its own peculiar beauty. So abundantly do the Ceanothuses grow in some parts of California that the mountain slopes are enveloped in early summer with a blue so pure and unbroken that it might rival that of their own cloudless skies.

Carpentaria californica, though not infrequently seen in westerly gardens, where it proves quite hardy without protection, does not always succeed satisfactorily. It apparently likes lime, since it flourishes abundantly in soil of that character. But, do what we will, it cannot be induced to blossom in this garden, where most plants which delight in a free, warm loam do remarkably well, notably the Philadelphus, to which this shrub is allied. However, some fresh plants raised from seed may give us the Anemone-like flowers which look so handsome against the dark green leafage.

Diplacus glutinosus is a most useful and attractive shrub about 4 feet high, with flowers of various shades, from creamy-white to golden buff and rich coppery brown or burnt orange. The most northerly type, and therefore the hardiest, which I came across in California, was the ordinary D. glutinosus of our gardens and cold houses, with cream, buff, or salmon-buff blossoms. This is as hardy here as any of the so-called hardy Fuchsias, and we have some plants which have been out for years without winter protection. The frost may nip them, and frequently does, but as they are better for cutting back to the base every spring, that matters little. Few dwarf shrubs are so floriferous as D. glutinosus, and the uncommon colour and peculiar elegance of growth are always a distinct acquisition to the wild garden. This Diplacus is a good subject for stony, hot soils

The deep ruddy brown form of the above is not quite so free with us, and the bright red D. puniceus we have as yet been unable to obtain. This appears to be a distinct species, and is considered so in America. Since it comes from much farther south than the common D. glutinosus—*i.e.*, from San Diego County, on the Mexican border—it is probable that it is very much more tender. The "Sticky Monkey Flowers," as the Diplacuses are called, are among the easiest of plants to propagate by cuttings; they should be inserted in the late summer, and the young plants will flower in their second year in the open.

Æsculus californica, the Californian Buckeye, which often attains the stature of a tree in its native country, is generally seen here as a shrub of some 8 feet. This tree has large, handsome palmate leaves, and erect clusters of pink and white, very fragrant flowers. It is one of the few deciduous species in California, yet it is not deciduous as we understand the term. That is to say, Æ. californica adapts itself to circumstances when growing in very hot, arid land, by shedding its leaves in July and reappearing in a spring green dress in September.

Sambucus glauca, the blue-berried Elder, a ush of 5 to 8 feet over the greater part of s range, is truly deciduous, but it breaks nto leaf very early in the year. Fraxinus ipelta is a shrubby flowering Ash of the ierra Nevadas; it is of graceful habit and ears sweet-scented, white flowers in large anicles somewhat after the manner of F. rnus. This is a very desirable shrub, and, hough I do not remember having seen it in his country, it would probably be quite hardy n the more westerly counties.

The Pacific Slope of North America has not iven us many Azaleas, but A. occidentalis syn. Rhododendron occidentale) should not be verlooked, inasmuch as it is one of the latest f all to blossom and has imparted its late-owering to a number of useful hybrids. The ype species grows to about shoulder height n the thin woodland of valley bottoms in the nore northerly parts of California. It is a hin-habited, deciduous bush, bearing terminal lusters of white, or blush-white, sweet-scented owers, usually in July. A. occidentalis is of asy culture, and does remarkably well in he free loam of our woodland garden. The ccidentale hybrids are not less amenable to uch treatment, and some of them are very ttractive little shrubs. Rhododendron caliornicum we have not yet grown in this garen, nor did I come across it in its native and. It is evergreen, has a good name for ardiness, and produces rose-purple flowers in ompact heads about midsummer.

Umbellularia, the Californian Laurel, is, ke many of its companions, a most variable enus, attaining the dignity of a timber tree f no small value in some places, and remainng a low, dense shrub in others. In the atter form it is a most conspicuous feature n many of the hills about San Francisco, s dark, Holly-green crowns standing out in rong contrast against the tawny, sun-burned rass of summer.

Umbellularia (syn. Oreodaphne) californica s hardy enough for general outdoor treatment n our milder localities, and has no little esemblance to the common Bay. Like the atter, the wood as well as the leaves is romatic, and, though the flowers are inignificant, the large, Plum-coloured drupes hich follow them are distinctly attractive. his is a good shrub for dry banks, and it as proved an effective wind resister in seaide gardens.

I cannot omit from these notes a reference o Ribes speciosum (syn fuchsioides), the uchsia Currant of California, which, despite ts popular name, is much more like a Gooseerry in foliage, habit, and the spininess of ts twigs than a Fuchsia. It is one of the ardiest of these Pacific Coast shrubs, most oriferous, and one that will succeed in any ight, warm soil in full sun or partial shade. he deep red flowers, with long protruding tamens, hang from the leaf axils in the reatest profusion, and last in fresh condition or several weeks. To enjoy the full beauty f this shrub it is best grown almost on a evel with the eye. There are other members f this genus indigenous to California, but I onsider R. speciosum the most worthy of nclusion in gardens. In bleak districts it does well as a wall shrub, and as such will ttain a height of 6 feet to 8 feet.

California has a number of Ericaceous hrubs, some of which are among the choicest ubjects of their kind in our West Coast gardens. Perhaps the most notable is Arctostaphylos Manzanita, an evergreen with leathery, ather grey-green leaves and panicles of large, urn-shaped, blush-white blossoms, which open n the early year. There are some good pecimens of this species at Kew, and it is one well worthy of a place among kindred hrubs in any light, lime-free loam where the limate is suitable. Although this "Manzanita," as the genus is popularly called in California, may sometimes be found growing up to 20 feet in height, it more often makes a good-sized bush, with the dimensions and habit of a well-grown Escallonia macrantha. *A. T. Johnson, Ro Wen, Talycafn, North Wales.*

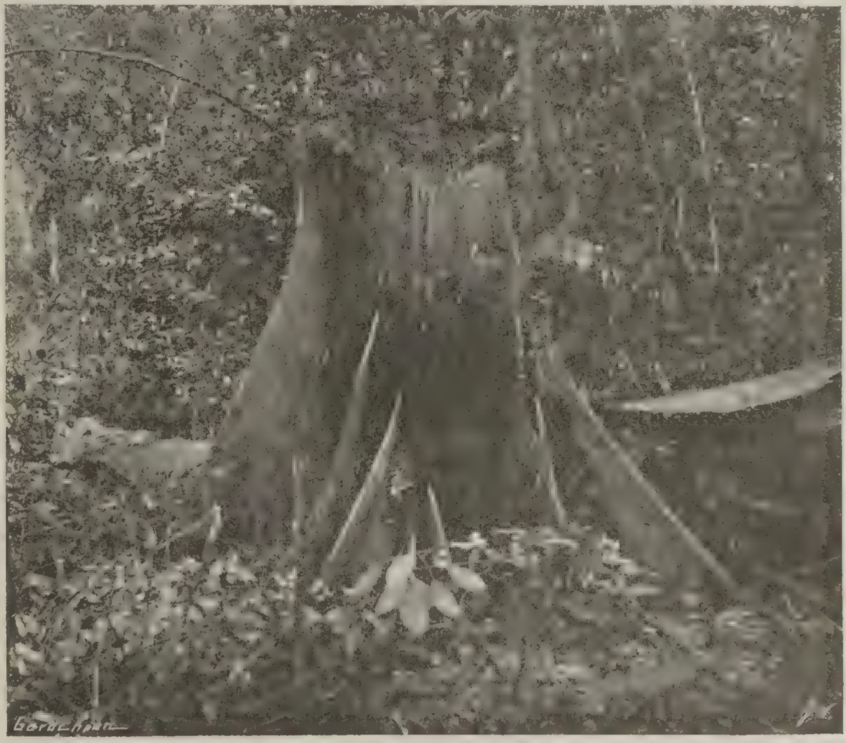

FIG. 81.—A BUTTRESSED TROPICAL TREE BROKEN BY A STORM. (SEE PAGE 174.)

THE BULB GARDEN.

WHITE CROCUSES.

Every year when Crocus time comes, I reach out and take down *My Garden in Spring*, by Mr. E. A. Bowles, and read faithfully the chapter on "Spring Crocuses." It runs to 32 pages. One does not require to agree entirely with Mr. Bowles to enjoy everything he writes. For example, I would question some of the following opinions: "The fat, prosperous, gone into trade and done well with it, garden forms of *Crocus vernus* are best used for colour masses. The individual blooms strike me as coarse after the refined true species. But used as I like the Dutch Yellow, they look well. . . . I do not care so much for large clumps of any white form. At the back of the borders they look too cold, and suggest unmelted snowpats.

For some years I have observed rather carefully the white Crocuses, and this spring they have been particularly fine in my garden. The following six are placed in my opinion in their order of merit:—

Kathleen Parlow, a most refined flower of the purest white, with no trace of blue colour on the outside of the flower or flower stalk, but there is frequently the faintest pale lilac thread down the centre of the inside segments. I cannot conceive of anything more beautiful in the March sunshine than this same Crocus, whether in clumps or lines (I have it both ways) when it opens as it did this afternoon. The open flowers were about two inches in diameter, the points of the segments slightly incurved, and the rich, orange-coloured stigmata nestling in the centre, formed a picture of bewitching beauty.

Tilly Koenen.—Large, white, with deep purple colouring from the base of the flower to 1½ inch down the stalk (this colour is on each of the six segments). Only the faintest line of purple is seen inside the three inner segments. This variety is a strong grower.

King of the Whites.—Large, fine white, with narrow, purple line at base of flower, and four very faint purple lines inside of most inner segments; the outside segments are clean on the inner surface.

Snow White.—Like Kathleen Parlow, but distinctly lined outside at the base of the segments with blue, and with the inside of the inner segments faintly lined with blue.

Mont Blanc.—Medium sized, white, lined outside with purple, which extends a good way up the flower, especially on the inner segments.

Caroline Chisholm.—Medium sized, white, marked with blue at the base, and distinctly lined with blue on the inside of the inner segments, and faintly on the inside of the outer segments.

I grow a fairly representative collection of the Dutch Crocuses, and have only a few of the true species. I find in our northern climate, C. Sieberi, C. versicolor, C. Imperati, C. biflorus, and C. Tommasinianus, have a rough time out of doors; a cloche raised on small blocks of wood placed over a clump gives the necessary protection, and brings out the flowers in all their pristine beauty. A thousand people must grow the ordinary Crocuses for one person who grows the species, and I would suggest clumps of a dozen bulbs along a grass verge, or even in front of an ordinary garden border; alternately, Kathleen Parlow and purpurea grandiflora, or Kathleen Parlow and Mikado, if a softer effect is wanted. Mikado is a white variety with pale purple base, beautifully and distinctly pencilled all the way up the segments with heliotrope; it is a most distinct Crocus. *W. Cuthbertson, Duddingston, N.B., March 18, 1923.*

CROCUS TOMMASINIANUS.

Crocus Tommasinianus is one of the best species for naturalising in grass and open woodland. It is a native of Dalmatia and Serbia, and closely allied to the well-known C. vernus, but differs in having a glabrous throat, and in other small characters.

During the early days of February a colony of this plant in full flower is a welcome sight, and as it increases readily it soon spreads into large groups, producing a succession of bloom over a long period. The colour of the flowers varies from a pale to a rich bright lilac, less variable than many other species. In the rock garden it is apt to become too encroaching, and once established is difficult to eradicate owing to the freedom with which seeds are produced and scattered. This self-seeding is, however, an advantage where the plant is naturalised. *W. I.*

DEGENERATION IN POTATO FLOWERS AND CAUSES OF STERILITY.*

AT the meeting of the British Association held in Edinburgh I gave a paper on "Degeneration in Anthers of Potato," dealing with the subject chiefly from a morphological point of view. I also suggested a scheme of work for the further investigation of the problem, and I now give the results I have obtained up to the present.

The great difficulty of obtaining satisfactory Potato hybrids is well known. The sterility of the flowers of many of the best-known economic varieties makes it well-nigh impossible to use them as parents. The inquiry into the causes of this widespread sterility constitutes, therefore, a very practical form of research.

As Potato pollen, even when morphologically sound, presents certain variations, I have found it necessary to make a fairly exhaustive study of Solanaceous pollen as a whole. The somewhat prevalent idea that all Potato pollen is uniformly oval in shape and that any deviation from the oval type is a sign of abortion I find to be erroneous.

The Solanaceous pollen that I have examined falls into three main groups which I have called (1) triagonal long grains, (2) pentagonal long grains, (3) pentagonal short grains. In the triagonal pollen the grain is pointed at each end and has three curved sides. Halfway down the grain at the juncture of the sides are three germ spores. Examples of this type are to be found in Petunia varieties and Hyocyamus niger.

In the pentagonal pollen each grain has a pentagonal face at its upper and lower ends, and five curved sides having five germ spores at the juncture of the sides. In this group the dry grain is twice as long as it is broad. I have found several members of the Solanaceae having this type of grain—*e.g.*, Nicotiana Sanderae, Schizanthus retusus, Solanum tuberosum variety Myatt's Ashleaf, Solanum dulcamara, and Solanum niger.

The short type of pentagonal pollen differs from the above description in that each grain is as long as it is broad, and the upper and lower pentagonal faces are much more conspicuous. Examples of this type are Solanum tuberosum varieties Leinster Wonder, Kerr's Pink, Majestic, Great Scot, etc., Nicandra, also Salpiglossis, in which last example the grains are always in clusters of four.

It is now necessary to consider the Potato pollen in particular, and it will be seen from the above descriptions that it falls into two groups—Myatt's Ashleaf having long pentagonal grains and many other economic varieties having short pentagonal grains.

I consider this appearance of long and short pollen in different varieties of Potatos to be a matter of great interest and importance. Repeated observations of my breeding results of the past five years indicate that amongst varieties susceptible to Wart disease long pollen is coupled with a much higher degree of susceptibility to the disease than is short pollen. I hope to obtain further information on this point.

Another matter of interest in connection with Potato pollen is that among the short pentagonal grains are to be found also compound grains. I have traced the origin of these compound grains to irregularities in the formation of tetrads, cell walls being formed round two or even three of the four nuclei in the pollen in mother cells. These compound grains appear to be sound morphologically. and I have observed the germination from them of normal pollen tubes. Again, in rapidly degenerating pollen, such as is found in Great Scot, these grains are among the last to survive. What sort of genetic composition is possessed by hybrids resulting from pollination by compound grains is a point of very interesting conjecture.

I will now give some of the results of my investigations on the causes of degeneration in the anthers and to a lesser degree in the ovules of the flower of the economic varieties. I am writing a separate paper on my investigation into the various examples of ovule sterility found in Solanaceae, including abnormal embryo development, so that I shall here touch on ovule degeneration only in so far as it affords an example of one or other of the types of anther degeneration.

A type of anther degeneration very widespread, not only amongst Potatos, but also in a large percentage of our cultivated flowers, is exhibited by the presence of shrunken or abortive pollen grains in the anthers.

I have examined some two hundred different plants, including Monocotyledons and Dicotyledons, having shrunken grains, and in every case the method of degeneration appears to be the same. It does not start until after the formation of the tetrads, and in many cases I have observed two marked periods of rapid degeneration, the first being directly after the young pollen grains have assumed their characteristic form, and then again just before the dehiscence of the anther. The nucleus first degenerates and finally disappears, followed by the cytoplasmic contents, leaving the grain an empty skin. It would appear that the healthy grains are parasitic on their fellows, robbing them of every vestige of protoplasmic contents. The cause or causes of this degeneration are not fully known. It has been suggested that the cause may frequently be physiological and due to insufficient nourishment brought up through the anther filament. My own observations point to irregular heterotypic divisions as responsible for, at any rate, some of the abortive grains. The anthers of Great Scot Potato afford an excellent example for the study of the shrivelled grains. The second example of anther degeneration I will call the Up-to-Date type, since it has been from my cytological investigation of the past four years on Up-to-Date flowers that has brought to light this unique form of degeneration. It must not be thought, however, that this type is confined to the Up-to-Date variety of Potato. A large number of some of our best-known varieties exhibit this same characteristic form of anther disorganisation.

I studied cytological material from buds of all ages, with the following results:—The development of the anther is perfectly normal up to the pollen mother cell stage. From this stage on disorganisation is very rapid. No chromosomes are formed, and hence no reduction division has been observed. Although I have examined the anthers from some hundreds of Up-to-Date flowers from various places in England and Scotland, I have never found any pollen. In Epicure, the anther disorganisation is not so complete.

On examination of sections of very young buds at the pollen mother cell stage, I found numerous small amoebae. Along the outside of the bud I observed breaks in the plant tissue where disorganisation had begun. At these breaks the amoebae appear to enter, and their invasion is characterised by a steady breakdown of plant tissue, always preceded by degeneration of the plant cell nucleus. The amoebae at this stage are very minute, and can be observed satisfactorily only under a magnification of 1,000. They are oval or round in shape, having a well-marked nucleus and finely granulated protoplasm. They appear to cling to plant tissue by the assistance of minute pseudopodia. At this stage they may be seen, also, in the anther cavity, either in the pollen mother cell nucleus or attached to its outside. The inference is that these amoebae cause the initial stages of anther degeneration. They are also probably entirely responsible for the male sterility in Up-to-Date and in other varieties of Potato showing similar anther conditions, since the degeneration of the pollen mother cells is coincident with the invasion of the amoebae. The nucleolus of the pollen mother cell becomes slightly distorted in shape, and the nuclear thread contracts and gradually disappears.

(*To be continued.*)

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* A paper, illustrated by lantern slides, read before the Agricultural Section of the British Association for the Advancement of Science, by **M. S. G. Breeze**, B.Sc.

VEGETABLE GARDEN.

PEAS.

PEAS give the best results when grown in rich soil of a medium texture. It is worth while to make trenches for the accommodation of the roots, and they should be two feet in depth and one foot in width. At the bottom of the trenches place a six inch layer of rich farmyard manure, afterwards filling in with soil to which farmyard manure has been added at the rate of one cwt. to every twelve feet of trench.

The seed of early varieties of Peas may be sown in the latter half of March. To maintai a succession it is essential to make sowings every fortnight until the last week in May. Secon early and main crop varieties may be sow from mid-April onwards. It is in the interes of the crop to sow every seed two inches fron its neighbours on all sides. In most districts the seedlings will require protection from birds wire guards are undoubtedly the best measure o protection, but black cotton stretched on shor sticks pushed in the row will serve the purpos quite well.

Varieties that grow taller than two feet requir supports, and Hazel branches are very suitabl as Pea sticks. Every year, however, increase the difficulty of meeting with suitable natura supporting material, and gardeners have t depend on artificial measures. Fish-netting an wire-meshed netting attached to stout stakes ma be used with success. The support should b placed in position as soon as the plants com mence to form tendrils, or the haulm wil become misshapen. The weight and quality o the produce is improved by judicious feeding superphosphate of lime is a suitable fertilise to employ, and it may be used weekly, afte the flowers have fallen, and until the pods ar nearly filled.

Of the many excellent varieties in cultivati I recommend the following as being suitable fo general use: Early, English Wonder (1½ foot) Peter Pan (1½ foot); Second Early, Stratagen (2 feet), Prince of Wales (3 feet); Maincrop Alderman (5 feet) and Sharpe's Liberty (4 feet) *G. H. Copley, N.D.H.*

FOREIGN CORRESPONDENCE.

COMPOST SOIL.

MR. AUTON's method (p. 302, Vol. LXX.) o allowing all garden refuse to rot and not burnin it, for use as compost, is very interesting fro an economic standpoint. From a fair-sized garde it is possible to have a good heap of rich materia suitable for potting and for mixing with othe soils, by saving all the refuse from the gree houses, kitchen gardens and park, also gras cuttings from lawns, and placing the whole i one large heap to rot for a couple of years I have a heap from last year of at least on hundred loads, which we are just turning. Th will remain until next year before it is use If the heap is turned properly and laid up, sa two yards high and four or five yards wide, will not be unsightly. In the second year it wi be fit for use, and we employ it for mixin with other soils for growing vegetables in frame for potting plants and for use in the kitche garden, on lawns, etc. I consider it is wort at a low estimate, four or five shillings per loa when ready for use. It is a good plan to mi a little lime with the material when turning i Care should be taken not to take up too muc gravel when sweeping the paths, or this wi cause much inconvenience when using the co post. I have heard some gardeners say that the garden fire was never extinguished, and whil a good heap of wood ash is not to be despis in a garden, the difference in the size of th heap of the cremated rubbish and that of rotted heap of soil bears no comparison. grow Vegetable Marrows and Ridge Cucumbe on the heaps after turning them. This economic and helps to keep weeds down, althoug the risk from weeds is reduced to a minimu by the heating of the rubbish, through ferment tion, the first year. *James Page, Sweden.*

TREES AND SHRUBS.

FENDLERA RUPICOLA.

Fendlera rupicola is a beautiful deciduous ub that deserves to be better known, for v plants are more effective, and at the same ie more easily grown if given a sunny, warm sition. This interesting member of Saxifraceae is closely allied to Philadelphus, but fers from that genus by reason of its eight mens and superior ovary. The beautiful ite or faintly rose-tinged flowers, which individually somewhat resemble a Maltese cross, from 1 to 1½ inch across and usually borne itarily, but sometimes in threes on short igs on the previous year's growth; the petals rhombic-ovate and contracted at the base o a distinct claw, while the cluster of bright low stamens stands up erect on petaloid filaments and adds to the beauty of the flower.

The almost sessile leaves are rigidly coriaous, lanceolate on the sterile branches, about inch long and ½ inch wide, prominently ee-nerved, revolute at the margin, with rt, stiff bristles above and greyish tomentum neath, while the leaves on the flowering ots are much smaller, being linear and stered on short twigs.

This sturdy, rigidly-branched, deciduous rub is a native of the South-Western United ates, and is found growing on the sunburnt pes in Texas, New Mexico, Arizona and ah. It is considered to be one of the most autiful plants of its own region, where its fusion of white, or rose-coloured flowers is d to give it the appearance of a small Peach e. It was first introduced into Europe about 79, and into this country three years later, hough the date of its introduction in Euroan gardens is sometimes given as 1888. The ustration (Fig. 82) shows a spray from a fine ecimen 8 ft high, growing against the Cacs House in the Botanic Garden, Cambridge. the less favourable parts of the country it essential to plant Fendlera rupicola in a rm, sunny position. It is not particular as soil and is readily raised from seed, or from ttings of rather soft wood placed in gentle at. *F. G. Preston, Botanic Garden, Camidge.*

MAGNOLIAS.

Magnolia conspicua and M. c. Soulangeana e two very attractive and useful trees to nt, provided the situation is somewhat eltered from north and east winds. The nts will grow freely and produce large antities of blooms early in the year, and at ime when flowers are none too plentiful. The st named produces white blooms slightly sufsed with purple, and sweetly scented. The ter bears larger and deeper-coloured flowers.

These two Magnolias are beautiful objects in y garden, and thrive well in a moderately ht, turfy loam, mixed with decayed leaf uld, and a little animal manure. Some garners mix a little fibrous peat with the loam, t that is not necessary if the latter is sweet d fibrous. Magnolia stellata forms a pretty ect, and should be given a well-sheltered sition. The blooms are freely produced, eetly scented and expand before the leaves ly develop. *H. Markham, Wrotham Park rdens, Barnet.*

BERBERIS VULGARIS.

A good deal has been justly written on behalf the comparatively new species of Berberis m China, most of which have been introced during the present century. While ring all these newer species their due measure praise, the merits of the common Berberis lgaris must on no account be passed over. r, taken altogether, it is, at least from my int of view, second to none. With space for development it forms an exceedingly gracel deciduous shrub, which is in May laden th pendulous racemes of yellow blossoms. is, however, in the autumn when the berries e ripe that its most conspicuous phase of auty is seen. Then the berries acquire a ight scarlet colour, and their weight imparts the young shoots an even more pendulous aracter than at other seasons. *T.*

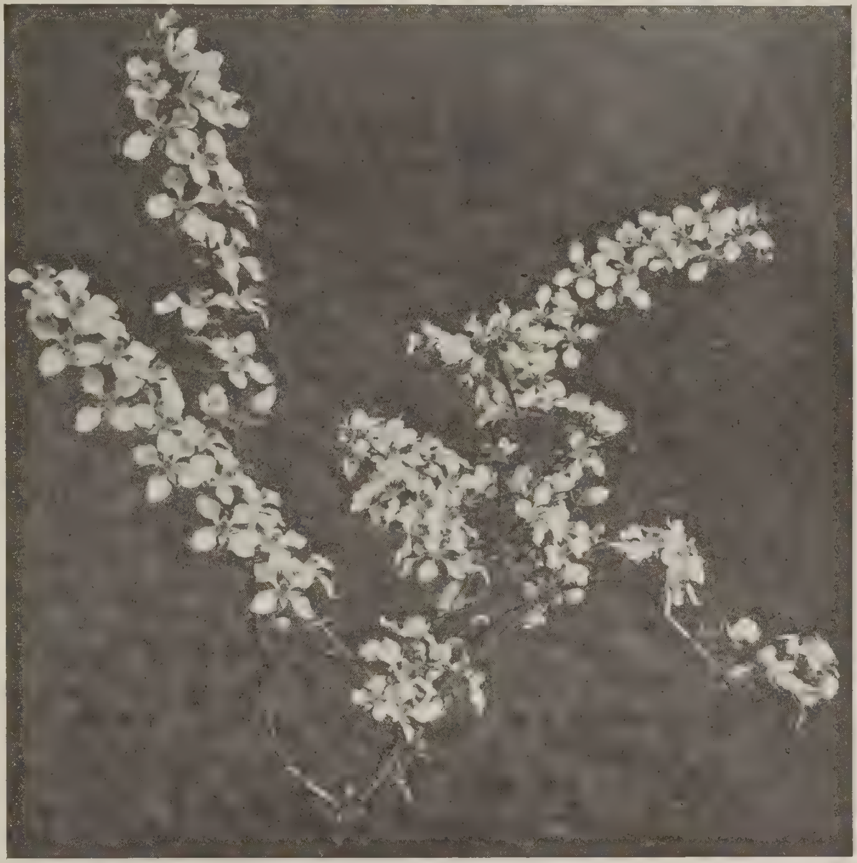

FIG. 82.—FENDLERA RUPICOLA.

ORIGIN AND EVOLUTION OF SUMMER-FLOWERING GLADIOLI.*

(*Concluded from page* 164.)

The bluish-violet colour in G. Lemoinei was a surprise, resulting from a genetic combination difficult to explain, which was, however, rapidly transmitted to a number of very fine varieties, and is still particularly popular. I should like to add that the hardiness which is a characteristic of G. purpureo-auratus, and which enables it to pass mild winters in the open, encouraged the hope that the race which is derived from this species would be equally hardy, or nearly so. Unluckily, this hope has not been realised.

It was a little later, about 1890, that M. Lemoine placed in commerce his first Nanceianus hybrids. They were the results of crosses between blotched Gladioli and G. Saundersii. This new race at once attracted attention by the very large size of the flowers, no longer round and curved like those of the blotched hybrids, but large and wide open, with the lateral divisions extended in the form of wings, with dainty blotches of a clear ground colour, finely spotted with red or purplish-brown.† Large numbers of the remarkable varieties which he originated are still in cultivation, and take rank with the best in size and in richness of colour.

Here, then, we have three races of Gladioli, perfectly distinct from the primitive types, as well in their origin as in their characteristics. On account of their frequent crossing and of their tendency to hybridise spontaneously, seedlings show a great diversity of form and colour. It would seem that raisers have attached less importance to the fixing of racial characteristics than to the size of the flowers, the richness or novelty of the colouring, hardiness, or easy propagation. It is for this reason that so many varieties appear, beautiful indeed, but intermediate in character, and tending to combine all the precedent races, though these were originally quite distinct. This fault is found in many foreign varieties.

I admit that it is difficult to resist the desire to choose from among seedlings the plants whose only fault is that of mixed breed, that is to say, an impure gandavensis, Lemoinei or Nanceianus, impossible properly to class. But it does seem to me that the horticultural trade will lose more than it will gain if these distinct races are allowed to merge into one. For my own part, I have always steadfastly set my face against it, and have frequently pointed out the danger.

I now come to the most recent race in point of date, and perhaps the most distinct, with its slender stems, and flowers of warm, pale colours. I allude to the Gladiolus primulinus hybrids which have become familiar to us in the last decade or so. I cannot very well praise these Gladioli too fulsomely on account of the part I have myself taken in their raising.

Gladiolus primulinus (type)* has been known since 1890, and was reintroduced in 1904. The slenderness of the stems, the crested form of the small flowers, and their pure Primrose-yellow colour are the chief characteristics of this species, which was immediately used for hybridisation in the hope of obtaining Gladioli with pure yellow flowers.

Results were not long in coming. In 1908, M. Lemoine placed in commerce G. primulinus major, and MM. Cayeux and Le Clerc showed in the same year, in this very place, their first hybrids, of a yellow colour, very remarkable for the time.† In this connection, I should like to express my thanks to M. Cayeux for the generosity with which he sent me some stamens of the G. primulinus type, which he was showing at the same time as his first hybrids. The pollen was sufficient to make several crosses, and thus originated the primulinus hybrids raised by MM. Vilmorin at Verrières. Worked with the various cultivated races—gandavensis, Lemoinei, and Nanceianus—tried with Colvilei, and used by all the various specialists, both French and foreign, G. primulinus has very rapidly given rise to a race of Gladoli remarkable for warm, brilliant colours, in which orange or apricot tones—produced by the mingling of yellow and red—are predominant, and make these flowers invaluable for decorative purposes.[*]

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* A paper read by M. Mottet at the conference held by the Société Nationale d'Horticulture de France on August 10, 1922, on the occasion of the Gladiolus competition; translated from the Society's *Journal.*

† See *Le Jardin*, 1900, p. 348, pl. in colour.

* See *Revue Horticole*, 1908, p. 8, fig. 1.

† See *Journ. de la Soc. Nat. Hort. France*, **1908**, **p. 466.**

This is not all; for these Gladioli, which might possibly be thought inferior to the previous varieties if attention were paid only to their spikes and the number of flowers open at the same time, have preserved—or at any rate their raisers have made it their object to preserve—the special form of the type in which the upper division is strongly developed and arched in front, while the lower ones are very short and recurved. In the hybrids, however, this form is modified; the upper division, always the larger, becomes horizontal, the laterals spread out like wings as in the Nanceianus hybrids, and the lower petals increase in size, being also adorned with blotches, some of which are quite large, of a colour in which yellow predominates. It is to these characteristics, and also to the slenderness of the stems, that these hybrids owe their great value as cut flowers. This decorative value becomes ever greater as larger and larger flowers are produced with firm stems; no better demonstration of this progressive improvement could be found than the series of the most recent seedlings, still unnamed, shown by MM. Vilmorin, when compared with the varieties raised before, or at the beginning of, the war. These new French varieties yield in nothing to those raised abroad. It was thought, in the early days of Gladiolus raising, that the hooded form was a fault, which would be cured by further hybridisation; I have always opposed this opinion, and, so far as I am concerned, I have always tried to preserve it, at the same time endeavouring to eliminate the deep colours, which have a tendency to reddish-brown, dark lilac, and violet, and I believe that this view on the subject of G. primulinus hybrids generally prevails among raisers.

These Gladioli are chiefly useful, not so much for the ornamentation of large gardens, as for planting in small beds and borders near the house, and, above all, for use as cut flowers in small vases and jardinières. Arranged with a little light foliage, they produce a most charming effect. Particularly in artificial light, their clear yellowish or orange tones are seen at their best; while the red, lilac, and violet tints of their congeners are more or less extinguished.

It may be added that the G. primulinus hybrids are very easily propagated—nearly all the corms flower in their second year; they are cheap to buy; and by arranging the corms in different ages and sizes, it is easy to get a succession of flowers from the end of July until the first frosts. As in the case of the other races, the corms flower early in proportion to their size, and the larger ones of the previous year will flower, at least some of them, in the autumn. Sometimes a few flowers remain right up to All Saints' Day.

Many other races have been produced in the course of the evolution of the garden Gladioli, which, after existing a certain time, have disappeared for want of any outstanding merits. Among others may be mentioned the Childsii hybrids (G. turicensis, raised by Max Leichtlin about 1860, and renamed in America) which were not able to hold their own against G. Nanceianus; the dracocephalus hybrids of M. Lemoine; the round-spiked Gladiolus which has several times been upheld as useful for the centres of bouquets; the massiliensis Gladioli of M. Deleuil; the vitriacensis hybrids of M. Cayeux, etc. To conclude, I will mention G. princeps,[†] which was thought to be destined to give rise to a brilliant progeny. Not only were its descendants completely uninteresting, but it rapidly lost its power of propagation, and became so difficult to obtain that nurserymen sometimes substituted for it a Gandavensis hybrid of the same red.

To make the list complete, I would remind you of the Gladioli which develop in the winter and flower in the spring, of which there are several species; notably G. Colvilei, or dwarf Gladioli. These Gladioli are not hardy in our climate, and are therefore but little cultivated here.

HOME CORRESPONDENCE.

Grevillea asplenifolia.—At one time more than 150 species of Grevillea were grown at Kew, and a large number of them in private gardens. At present I can only see four species offered by nurserymen, and two or three of them are sufficiently hardy to be grown against a warm wall outdors. For some years past a Grevillea has been sold in florists' shops during February and March, but no one seems to know what it is. I have a record of the plant being sold in Bournemouth in 1919; and recently saw it at a meeting of the Royal Horticultural Society. A specimen was sent the other day by a correspondent in Hertfordshire, and I have determined it to be G. asplenifolia, from New South Wales. It is figured in the *Bot. Mag.*, t. 7070. It makes a tree 12-15 ft. high in its native country, and bears linear-lanceolate, entire, toothed or pinnatifid leaves. Those grown formerly in this country and those now coming into this country from the shores of the Mediterranean all agree in having toothed or occasionally entire leaves, with triangular, acute teeth. The leaves are silky and white, or slightly fulvous on the under surface, while those grown in their native country are mostly of a deep fulvous hue, with a metallic sheen. As these leaves vary from four to ten inches in length they are very handsome and useful for decorations. The short racemes of flowers are fulvous red in bud, opening to pink with streaks of red. In all probability this plant would require to be grown in a greenhouse from which frost is excluded in this country. Hence I presume that the cut branches being sold come from the South of France. *J. F.*

Sisyrinchium filifolium.—It is to be hoped that this species has now come to stay, because of its large and showy flowers. It is most nearly related to S. grandiflorum, having smaller, but erect flowers of a different colour. The plants, from which the figure in the *Bot Mag.*, t. 6829, was drawn, were sent by the late F. W. Burbidge in 1885, so that he was probably the first to flower the species, and certainly the first to bring it to public notice. It would be interesting to know how it came to be lost to cultivation, seeing that Mr. Clarence Elliott (page 129) assures us of its perfect hardiness. I can speak of the hardiness of its near relative, S. grandiflorum, which comes from Vancouver Island and California eastwards to the Rocky Mountains. My first experience of it was in the lower part of a garden where the temperature must frequently have been down to zero when the ground in winter was not covered with snow. It was grown in the herbaceous border without special treatment, and bloomed beautifully in April, whereas S. filifolium does not reach this stage until May and June. *F. L. S.*

"The Microscopical Theatre of Seeds, etc.," 1745.—Mr. Gurney Wilson is, no doubt, aware that he will find James Parsons's book bearing the above title in *Pritzel*. The entry there is meagre compared with that of the same work in the *Library Catalogue* of the Massachusetts Horticultural Society, where the title occupies five lines. To that information is added "V.I. 4°, pp. [2], 348, pl. 8. London, 1745," and cataloguer's note, "No more published." The book is probably a rarity, for I do not find that any copy has been offered for sale by leading second-hand booksellers in recent years. *C. H. P.*

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 27 AND 28.—The gloriously warm a bright spring weather on March 27 brought large numbers of Fellows and visitors to see t beautiful display provided at the Royal Ho cultural Hall by numerous exhibitors. T golden colouring of the numerous Daffodils flected the sunshine, and gave the hall a appearance. Carnations, Rhododendrons, A mones, Alpine flowers, early flowering shr Freesias, Roses and Tulips were extensively played, and there were many interesti novelties.

Orchid Committee.

Present: C. J. Lucas, Esq. (in the chai Messrs. J. O'Brien (hon. secretary), Gurn Wilson (assistant secretary), Frederick J. Ha bury, E. R. Ashton, Richard G. Thwaites, J. Shill, T. Armstrong, Chas. H. Curtis, S. Flory, H. T. Pitt, Henry H. Smith, A. McBea W. J. Kaye, H. G. Alexander, Arthur D Fred. Sander and the Hon. Henry D. McLar

AWARD OF MERIT.

Odontoglossum Aurora var. Rajah (*Rossii Lambeauianum*), from Messrs. SANDERS, Albans. A charming cross, quite distinct fr the forms previously shown. Sepals and pet claret-red, with distinct white margin, the fi broadly ovate lip being pure white with a f small purple lines in front of the yellow cre The spike bore four fully expanded flowers

Laelio-Cattleya Nora (*C. Nortia* × *L.- Dominiana*), from Messrs. COWAN AND C LTD., Southgate. A grand flower of the L.- St. Gothard class. The sepals and very bro petals are rosy-mauve, the broad, crimped crimson purple with thin gold lines from t base.

Cattleya Suavior, Low's variety (*Mendelii intermedia Aquinii*), from Messrs. STUART L AND Co., Jarvisbrook. A showy flower and interesting example of the power of abnorm forms to transmit their characters, the peta in this case being inherited from the peloric intermedia Aquinii. The sepals and petals a blush-white, the petals having broad viol crimson bands. The front of the lip is a crimson-purple.

GROUPS.

Messrs. SANDERS, St. Albans, were award a Silver Flora Medal for an effective group which fine specimens of their bright yell form of Dendrobium Wiganiae, with go examples of D. nobile hybrids, D. Cybele a the rare D. atroviolaceum, were arranged wi Cymbidiums, white and coloured Cattleyas a Laelio-Cattleyas, and a very interesting sele tion of Masdevallias. Specially fine things not were Laelio-Cattleya Rheims var. Illustrio (Canhamiana × Aphrodite) with a two-flowe inflorescence of large and richly coloured flowe and Cattleya Dawn (Mendelii Mrs. F. Sander intertexta alba), a clear white flower, with oblong rose flush on the lip.

Messrs. COWAN AND Co., LTD., Southgat were awarded a Silver Flora Medal for effective group of Cymbidiums, including sple did examples of C. Dryad, a selection of Alexanderi, with white and rose flowers; Shillianum, large and well displayed; C. Pa welsii in variety; a light form of C. Preside Wilson with less C. Lowianum in it than those previously shown, and a good da Odontoglossum Harold.

Messrs. FLORY AND BLACK, Slough, we awarded a Silver Banksian medal for a ne group in which were white Cattleyas, includi three examples of C. The Bride, several of Trentino alba, and two of C. Megali Sand The novelties in the group were Cattleya G. Walker, var. Distinction (Mendelii × Tityu a large, light, lavender-pink flower with fin displayed Tyrian purple lip; and Brasso-Lael Cattleya Boadicea, blush-white, with lar purple lip with yellow disc, the last bei especially good.

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[*] See *Le Jardin*, 1911, p. 40, pl. in colour; *Revue Horticole*, 1913, p. 578, pl. in colour.

[†] See *Revue Horticole*, 1904, p. 208, pl. in colour.

Other Exhibits.

General Sir Arthur Paget, Warren House, Kingston Hill (gr. Mr. W. Penton) showed Cymbidium Lady R. Paget (insigne × Butterfly), with a strong spike of good, pale yellow flowers with red markings inside the front of the lip.

Sir G. H. Kendrick, Whetstone, Birmingham, showed a well-flowered and brightly-coloured form of Dendrobium Niobe (nobile × tortile), he type of which was shown by Messrs. J. Veitch and Sons in 1893. The present variety was near to a good D. nobile, but with the D. ortile twist in the petals.

Lady Aberconway, Bodnant, N. Wales (gr. Mr. F. Puddle), brought Cypripedium Psyche, Bodnant variety (niveum Goliath × bellatulum), fine white flower with small purple markings. The flower unfortunately was damaged in ransit.

H. T. Pitt, Esq., Rosslyn, Stamford Hill, brought a leaf and spike of one of the three grand plants of Neo-moorea irriorata, shown in his group at the last meeting and which were blackened and otherwise damaged by the cold in the imperfectly heated hall, and about which many exhibitors complained. We undertand that the attention of the Council has been alled to the matter .

Floral Committee.

Present : Messrs. H. B. May (in the chair), . W. Barr, W. J. Bean, C. Williams, J. F. McLeod, J. Jennings, D. B. Crane, J. B. Riding, Hugh Dickson, John Heal, George Harrow, W. Howe, H. J. Jones, C. R. Fielder, Donald Allen, W. B. Cranfield, Clarence Elliott, R. C. Notcutt, James Hudson, Reginald Cory, Arthur Turner.

First-Class Certificates.

Pieris taiwanensis.—This superb new shrub igured and described in *Gard. Chron.* February 3, 1923, p. 63, was shown in splendid condition on this occasion, the three plants exhibited being smothered with their clusters of Lily-of-the-Valley-like flowers. An Award of Merit was granted on March 14, 1922, and he higher award was well deserved on Tuesday last. Shown by the Marquis of Headfort, Kells, Co. Meath.

Prunus Blirieana fl. pl.—A lovely early flowering small tree, and bearing in great profusion semi-double flowers of a lively pink olour. This handsome plant is closely allied to Prunus Pissardi. Shown by Mr. R. C. Notcutt.

Award of Merit.

Saxifraga Griesbachii, Wisley var.—This differs from the type in having more highly oloured bracts on stout flower stems. Shown by Mr. Clarence Elliott.

Rhododendron rhododactylum.—A dainty pecies, with clusters of six small pale pink flowers of campanulate form. The ovate-anceolate, sharply pointed leaves are shining deep green above and rusty below. Shown by Lady Aberconway and Hon. H. McLaren (gr. Mr. Puddle), Bodnant.

Berberis replicata.—A distinct, but not very effective Barberry, with clusters of roundish pale yellow flowers, depending so as to hang below the arching growths. The linear leaves are dark dull green above and grey beneath. This species has the merit of flowering very arly. Shown from the Royal Horticultural Society's Gardens, Wisley.

Groups.

On a considerable floor-space, just inside the ntrance, Messrs. L. R. Russell, Ltd., had a highly decorative group of forced shrubs, which ncluded very floriferous Azaleas of various ypes, quaintly-shaped Wistarias, many Clematis, and Rhododendron Pink Pearl. A small plant of Franciscea calycina major, bearing its uncommon velvety-blue flowers, attracted a deal of attention (Silver Flora Medal).

Near by, Messrs. R. W. Wallace and Co. also had a beautiful group of flowering shrubs. Named varieties of Azalea mollis and of great excellence predominated, but the large group also contained many Wistarias, Laburnums, Deutzia gracilis and a few Alpines such as Anemone Pulsatilla (Silver Banksian Medal).

Well-flowered little bushes of Pieris (Andromeda) floribunda were prominent in an exhibit by Messrs. Bakers, Ltd. Viburnum Carlesii, Azalea indica and Daphne Cneorum major, in considerable quantity were well shown by Messrs. J. Piper and Sons (Silver Banksian Medal), while Messrs. Wm. Cutbush and Sons had many attractive plants of the best Azalea indica varieties, and a neat rockery in which they displayed various Alpines and a group of the glowing Scarlet Tulipa Eichleri (Silver Flora Medal).

Rhododendrons formed a considerable part of the tree and shrub exhibits. Beneath the gallery Messrs. R. Gill & Son had a number of beautiful trusses of bloom. A large quantity of Rhododendron Cornish Red, an old arboreum variety which in favoured places grows to considerable size, surmounted vases of Ernest Gill, Beauty of Cornwall, Zelanicum, an uncommon species which produces a long, compact truss of rich crimson flowers, and R. ciliicalyx. Besides the Rhododendrons, they showed large numbers of excellent Anemones, Erica codonodes, and Richardia spathes (Silver Banksian Medal). Mrs. Haywood Johnstone, Bigley Park, Pulborough, sent a collection of arboreum varieties of Rhododendron.

An interesting collection of Rhododendrons was shown by C. E. Heath, Esq., Anstie Grange, Holmwood. This included good trusses of sutchuenense, Spilsonii, arboreum, superbum calophytum, nobleanum and ciliatum.

In a miscellaneous collection, Mr. G. Reuthe had various Rhododendrons, including a good plant of R. calophytum, and trusses of R. niveum (Silver Flora Medal). Messrs. J. Cheal and Sons showed a well-flowered specimen of R. racemosum, with various alpines and other hardy flowers. Ericas Veitchii and Darleyensis were exhibited by Messrs. W. H. Rogers and Son.

Various Primulas, including the rare P. Allionii and Saxifrages were shown by Mr. Clarence Elliott. The Chalk Hills Nursery Co. had a large quantity of the old favourite double mauve Primrose, with Crown Fritillarias, and a well-coloured form of Thymus citriodorus aureus.

In a corner space, Messrs. Blackmore and Langdon set out many Polyanthuses of an excellent strain (Silver Banksian Medal). Messrs. Maxwell and Beale included pretty plants of Soldanella montana in a collection of alpines. Mr. G. G. Whitelegg showed many plants of Cheiranthus Allionii, and unusually good rosettes of Saxifraga carniolica and S. longifolia, with a number of conifers suitable for rock gardens.

The beautiful blue Pulmonaria azurea was prominent in a collection by Mr. F. G. Wood, whose exhibit also included many other interesting hardy plants (Silver Banksian Medal).

Messrs. Carter, Page and Co. had some early Violas, Primula frondosa, Narcissus calathinus in their exhibit (Silver Banksian Medal). Mr. G. W. Miller showed a wide range of Polyanthuses (Bronze Flora Medal); and Messrs. Reamsbottom and Co. staged many of their St. Brigid Anemones (Bronze Flora Medal).

Carnations were shown in great quantity by Messrs. Allwood Bros., who had good vases of Wivelsfield Pink, Wivelsfield Beauty, Chintz, and Edward Allwood (Silver Flora Medal). Mr. C. Engelmann showed Aviator, Rani, Benora, Circe and others (Silver Banksian Medal).

Such sorts as Peerless, Carola, Cupid and Amitus were prominent in an exhibit by Messrs. Keith, Luxford and Co.; while Messrs. Stuart Low and Co. gave prominence to Eileen Low, Hon. Charlotte Knollys, Red Ensign, and Hon. Nita Weir, and also showed Acacias, Cyclamen and Hippeastrums (Silver Flora Medal).

Messrs. Sutton and Sons had the earliest coloured Freesias, showing Merry Widow, Treasure, Robinetta and Mouette, with a few Cinerarias. Violets were staged by Mr. R. Pinney. Messrs. Moyes, Stevens and Co. had some excellent Roses, Hyacinths and Narcissi (Silver Banksian Medal); and Messrs. Barr and Sons showed Irises, Fritillarias, hardy Cyclamen and Primulas.

Roses were shown in increased numbers and considerable beauty. In his collection of such sorts as the new Allan Chandler, Florence H. Veitch, and Padre, of glorious colouring, Mr. George Prince had sprays of the uncommon species, Rosa hemispherica, bearing several double yellow flowers. Mr. Elisha J. Hicks had goodly vases of Premier, Columbia, Climbing Lady Hillingdon, and Coral Cluster (Silver Banksian Medal); while Messrs. F. Cant and Co. showed Lady Pirrie, Primrose Pirrie and Covent Garden. There were beautiful vases of Padre, Sovereign, Covent Garden, Phoebe, and Golden Ophelia, in an exhibit of Roses by Messrs. B. R. Cant and Sons (Silver Banksian Medal).

Narcissus and Tulip Committee.

Present:—Rev. G. H. Engleheart (in the chair), and Messrs. J. D. Pearson, Peter R. Barr, E. A. Bowles, J. W. Jones, H. V. Warrender, F. Barchard, George Monro, Rollo Meyer, Reginald Cory, Herbert Smith, W. B. Cranfield, F. Herbert Chapman, W. Poupart, and Chas. H. Curtis (hon. secretary).

Awards of Merit.

Narcissus Provost.—A magnificent golden trumpet Daffodil, of large size and wonderful substance. The bold frilled trumpet and the slight twist in the perianth segments at once suggest that this newcomer is a maximus cross. It is a giant, and of splendid colour. Shown by Rev. G. H. Engleheart.

Narcissus Callirrhoe.—A trumpet Daffodil of large size and good form; the trumpet is sulphur-coloured and the perianth white, broad and of fine substance. Shown by Mr. F. Herbert Chapman.

Narcissus Glorious.—A large-flowered Poetaz variety, twin-flowered, with large white blooms and a flat orange-coloured disc. The award was granted for the value of the variety for garden and cutting. Shown by Mr. J. L. Richardson, Waterford.

Narcissus Prince Umbria.—This is a beautiful incomparabilis variety, with white, overlapping perianth segments and a frilled-edged, primrose-yellow crown. Shown by Messrs. Barr and Sons.

Narcissus Golden Sunrise.—Another rich golden yellow trumpet Daffodil, with slightly incurving, broad perianth segments and a finely frilled trumpet. Exhibited for garden and cutting purposes. Shown by Messrs. R. H. Bath, Ltd.

Groups.

Messrs. Barr and Sons staged a great quantity of high-class blooms in very many varieties. The large Trumpets predominated, and these included Fantin Latour, Proserpo, Latona, Chloria, Alexas, and Carminata. Amongst the Incomparabilis varieties Apricot Queen, which has a long, pale apricot-coloured tube, attracted a deal of attention. Of this type Belarius and Proteus were also noteworthy, as also were Jaspar and Tamora of those with brightly coloured coronas. Besides the hundreds of named blooms, there were many seedlings of several types and of great excellence (Silver-Gilt Flora Medal).

Large Trumpet Daffodils were also prominent in the collection of Mr. J. Lionel Richardson, who showed such sorts as Comeragh, Cleopatra, Van Waveren's Giant and his new Tazetta variety Glorious, and the last drew attention to the more chaste attractions of Empire and King Cup of the same type. The Leedsii White Queen was well shown (Silver-Gilt Banksian Medal).

King Alfred was represented by splendid blooms in the exhibit of Messrs. R. H. Bath, Ltd. Other meritorious large Trumpet varieties were Golden Sunshine and the President. The smaller March White and Alice Knights were also very decorative. Feu de Joie, a good double-flowered variety, and the pale corona of Mace Bearer were both very distinctive. On a floor space Messrs. Bath displayed many Tulips growing in bowls of fibre (Silver-Gilt Banksian Medal).

A smaller collection shown by Messrs. F. H. Chapman, Ltd., included in Fortune a splendid Incomparabilis variety. The long, orange-coloured corona contrasted well with the paler yellow perianth. There were also some particularly good unnamed seedlings and, amongst the large Trumpet varieties Pampant, Bob Major, Stalwart and Eminent were excellent (Silver Flora Medal).

Such Barri varieties as Red Beacon, Sunrise and Lucifer compelled admiration in the exhibit by Messrs. J. R. Pearson and Sons, who also included Comus and J. W. Masefield, of the Poeticus section, and Fairy, Weardale Perfection and Florence Pearson, of the large Trumpet Daffodils (Silver Banksian Medal).

A decorative display was made by Messrs. J. Carter and Co., who filled large ornamental baskets with generous quantities of King Alfred Daffodil and King Harold, Feu Brilliance, and Sweet Lavender Tulips (Silver Floral Medal).

Under the influence of the bright sunshine the large collection of Dutch Tulips arranged by Messrs. R. and G. Cuthbert opened widely and made a most attractive display. The principal varieties were La Remarquable, Prince of Austria, Coleur Cardinal, Potter, King of the Yellows, and La Réve (Silver-Gilt Banksian Medal).

An artistic display was made by the Maytham Gardens, Rolvenden, with such Tulips as La Merveille, Louise de la Valliere, Gold Finch, and La Tulipe Noir (Bronze Banksian Medal).

Fruit and Vegetable Committee.

Present :—Messrs. C. G. A. Nix (in the chair), J. Cheal, H. S. Rivers, W. Lobjoit, S. B. Dicks, W. J. Jefferies, Geo. F. Tinley, Ed. Beckett, Geo. Reynolds, A. Metcalfe, A. Bullock, E. A. Merryweather, P. C. M. Veitch, W. H. Divers, H. V. Taylor, W. F. Giles, W. Poupart, and A. N. Rawes.

The only exhibit before this committee was a dish of Apple Lord Burghley, shown by Mr. P. C. M. Veitch, of Exeter. This excellent late dessert Apple was awarded a First Class Certificate on March 21, 1865.

NEWCASTLE AND DISTRICT HORTICULTURAL.

The first spring show of the Newcastle and District Horticultural Mutual Improvement Society was held on the 24th inst. Model rock gardens exhibited combined originality of design with beauty of floral setting, making pleasing effects. Equal first prizes for these rock gardens were awarded to Mr. J. Kirkbride, gardener to Mr. Brough, Ashfield Tower, Gosforth, and Mr. C. Dillon, gardener to Miss D Scott, Fenham, Newcastle; third, Miss E. Ormiston, Jesmond.

The floral exhibits were of good quality, Hyacinths, Tulips, Narcissi, Cinerarias, and Richardias (Callas) being especially good.

Mr. R. E. Richardson, chairman of the Society, staged a very fine collection of vegetables.

Another interesting feature of the show was a trade exhibit of Narcissi by the Donard Nursery Co., Ireland, which included choice specimens of the varieties Comely, Crocus, Crystal, Dingo, Festive, Gog, Magnificence, and others.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, March 1.—Committee present: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, J. Evans, J. Howes, J. Jackson, W. M. Jackson, A. Keeling, J. Lupton, D. McLeod, E. W. Thompson, J. Thrower, J. Whitham, and H. Arthur (secretary).

First Class Certificates.

Cypripedium Senator (*Gladiator* × *Duke of Marlborough*).—A large flower, the beautifully spotted dorsal having a broad white margin.

Odontoglossum promerens var. Prince Henry (*eximium* × *Leonard Perfect*).—A variety with very large, reddish blotches on a white ground; *Lycaste Skinneri Virgin Queen*, one of the best white forms, with a lemon-yellow throat. From S. Gratrix, Esq.

Awards of Merit.

Cypripedium Memoria F. M. Ogilvie vars. The Chancellor and Leopardinum, from S. Gratrix, Esq.

Dendrobium Bancroftianum, and *Cypripedium Cardemona* (*Carola* × *Desdemona*), from P. Smith, Esq.

Groups.

S. Gratrix, Esq., West Point (gr., Mr. J. Howes), was awarded a large Silver-gilt Medal for a group.

Messrs. J. Cypher and Sons, Cheltenham, staged a group for which a large Silver Medal was awarded.

Jas. Whitham, Esq., Crompton Hall (gr., Mr. E. Greaves), staged a group of Cypripediums and Cymbidiums for which a Silver Medal was awarded.

Obituary.

Thomas J. Grey.—The American horticultural papers record the death of Mr. T. J. Grey, seedsman, of Boston, trading under the firm name of Gilbride and Grey. Mr. Grey was a native of Ireland and emigrated to America when a young man. He was 78 years old when he died, and a sad fact in connection with his death is that his wife succumbed to pneumonia just one week previously. He was a former president of the Gardeners' and Florists' Club of Boston, and a prominent member of the Massachusetts Horticultural Society.

TRADE NOTE.

We learn that owing to the retirement from business of Mr. E. H. Krelage, the complete collection of his Daffodil seedlings will be sold by public auction at Sassenheim, Holland, during the latter part of April. The collection contains unbroken stocks of nearly four hundred distinct seedling Daffodils, including a number of varieties which have gained awards at Haarlem, London and Birmingham. In addition, sixty-seven beds of seedlings obtained from one hundred and twenty-five different crosses will be offered for sale. The plants will be open to inspection during the flowering season, which will probably commence about April 9. Catalogues of the sale may be obtained on application to Messrs. E. H. Krelage and Son, Haarlem.

ANSWERS TO CORRESPONDENTS.

Abnormal Arum: *H. A. J.* The development of a second spathe in Richardia (Arum Lily) is not uncommon; we have sent to us frequently specimens similar to yours, in which the leaf just below the inflorescence is converted into a secondary spathe.

Broccoli Failing to Form Good Heads: *A. O'L.* We do not think the soil is at fault, but suspect that you allowed the seedlings to remain too long in the seed bed before transplanting them. If the seedling plants became stunted and received a check before they were set in the rows, this would suffice to account for the heads growing so small.

Camellia Unhealthy: *A. O'L.* The Camellia leaf is covered with a sooty deposit, pointing to an infestation of mealy bug, and not due to drip from the roof glass as you imagine. The tree should be sponged with soapy water, an operation that will provide labour for the staff when work in the open is impossible.

Celery: *A. S. S.* If your Celery was properly grown, healthy and planted to time, as you state, then the fact that it was "tasteless, pithy, without good hearts, and later in the season rotted in the centre," points to the strain being an inferior one. Obtain seed of the best varieties only from a reliable firm. Select a fresh site for your Celery beds this season.

Failure of Herbaceous Paeonies: *J. C. W.* From your letter we suspect the plants have been starved, evidently in consequence of insufficient trenching of the soil and the poor quality of the latter. To obtain good results with Paeonies, stiff soil should be trenched about 3 feet deep and enriched with well-decayed manure—cow manure for preference. It is not necessary to trench so deeply on light, calcareous soils, but leaf-mould should be added to such ground in order that it may help to conserve the soil moisture in summer. An annual top dressing of decayed animal manure and leaf-mould should be applied and lightly forked in the soil any time from September to November, as these plants usually remain undisturbed for three or more years. A mulch applied in spring is also useful, as this tends to retain moisture during very hot weather. Paeonies in pots should be grown in a rich, loamy soil, mixed with a liberal quantity of leaf-mould and a sprinkling of sand. Ample drainage is necessary. Give the roots periodical supplies of manure water. These pot plants should be grown out-of-doors until the flowers are in the bud stage, to develop their blooms.

Onosmodium Thurberi: *Mrs. M. G.* This plant does not appear to be in cultivation at the present time. Some years ago seeds of it were supplied by Mr. D. M. Andrews, Boulder, Colorado. There are six species, all natives of the United States and Mexico. The only way to obtain seeds would be to write to some one in those countries.

Names of Plants: *H. J. A.* 1, Cupressus Lawsoniana var. lutea; 2, Cryptomeria japonica; 3, Pinus excelsa; 4, Taxus baccata var. aurea; 5, Thuya occidentalis var. lutea.—*F. E.* 1, Olearia Haastii; 2, Choisya ternata; 3, Lonicera nitida; 4, Camellia japonica; 5, Berberis Darwinii; 6, Cupressus macrocarpa; 7, Quercus Ilex; 8, Cistus laurifolius; 9, Thuya plicata var. zebrina; 10, Missing; 11, Fabiana imbricata.—*A. W. F.* 1, Saxifraga Burseriana; 2, S. Paulinae; 3, S. Elizabethae; 4, S. apiculata.—*E. G. S.* Rhododendron praecox.

Pelargonium Leaves Spotted: *G.* The spotting of Pelargonium leaves, such as yours, is not usually attributed to fungous attack, but to sour soil, in which the plants are growing. Plants similar to yours have recovered after the old soil has been removed from the roots and the latter repotted in fresh, sweet compost.

Value of Old "British Flora": *L. E. B.* If your copy of *The British Flora or genera and species of British plants*, arranged after the reformed Sexual System, etc., by Robert John Thornton, M.D., 2 vols. in one, 1812, as quoted by you, consists of only two volumes in one, then it is imperfect and probably of very little market value. This work was published in London, in 1812, in 5 vols., 8vo., and contained numerous plates. Most copies appear to be defective in this respect, for we have seen copies recorded as having 355 plates and 342 plates. A well known West End second-hand bookseller quoted this work in 5 vols. (not complete) at half a guinea. Another firm offered the first three volumes only, at 8s. 6d. These are both moderately recent quotations and will help you to form an approximate idea of the value of your two volumes.

Tomato Seedlings: *G.* There is no indication, from the specimens you send, that your seedling Tomato plants are blind, but they are very enfeebled and stunted. Their condition and especially the purplish colour of the stems, points to their having been grown in insufficient warmth.

Communications Received.—W. M. B.—H. P. T.—H. B. S.—R. S. S.—J. S., Henley—R.—J. M.

THE
Gardeners' Chronicle
No. 1893.—SATURDAY, APRIL 7, 1923.

CONTENTS.

Alpine garden, the :—
  Achillea argentea .. 183
  Arenaria verna .. 183
  Œnothera taraxicifolia 183
Apples, the winter pruning of.. 181
Azaleas, Kurume .. 182
Bamboo, a new genus of 181
Books, old botanical and gardening 188
Bulb garden, the :—
  The Gladiolus .. 183
Carnations, rust on .. 191
Easter in Covent Garden 186
Foreign correspondence :—
  Sempervivum .. 189
Fruit register :—
  Hardy Grapes .. 190
"Gardeners' Chronicle" seventy-five years ago 182
Gardeners' Royal Benevolent Institution's festival dinner 182
Ghent Quinquennial Exhibition 182
Hill, Mr. Richard .. 182
Glasgow flower shows.. 181
"Index Kewensis" .. 182
Indoor plants :—
  Javanico - jasminiflorum Rhododendrons 189
Olympia, gardens at .. 191
Orchid notes and gleanings :—
  Laelio-Cattleya Nancie Gamble 187
  Odontioda Daffodil Montague Mackenzie 187
  Odontoglossum Orosum 187
  Three Madagascar Cymbidiums .. 187
Parks and open spaces, public.. 185
Plums, approximate order of blossoming of 190
Potato flowers, degeneration in, and causes of sterility 188
Potatos, wart disease of, on allotments .. 182
Sandy flower show .. 182
Societies :—
  Manchester and North of England Orchid 191
  "The Orchard and Garden" 191
Trees and shrubs :—
  Prunus cerasifera and varieties 185
  Pyrus Scheideckeri.. 185
Vegetable garden :—
  Bulbous Chervil .. 190
  The Hardy Yams .. 190
  Winter Purslane .. 190
Ward's, Mr. Kingdon, seventh expedition in Asia 186
Week's work, the .. 184

ILLUSTRATIONS.

Achillea argentea 183
Eucalyptus haemastoma 187
Hill, Mr. Richard, portrait of 182
Narcissus Prince Umbria 189
Pyrus Scheideckeri 185

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 46.1°.

Actual Temperature :—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 4, 10 a.m. Bar. 29.9; temp., 57°. Weather—Sunny.

The Winter Pruning of Apples. Anyone of observant mind who undertakes the pruning of a mixed plantation of Apples cannot fail to discover that no rule-of-thumb method can possibly apply to all the different varieties. But although the pruner may readily convince himself that this is so, it is not easy for him to discover how to adjust pruning methods to the varying habits of the Apples which he grows. Nor can it be asserted that knowledge based on experiment is yet sufficient to provide the fruit grower with a sure guide to the methods of pruning applicable to strong growing, to weak growing, and medium growing varieties, and to trees of erect and of spreading habit. Nevertheless, the very thorough experiments which are in progress at the East Malling Experiment Station are already beginning to throw light on the effects of different systems of pruning on different varieties, and when in course of time these experiments are completed, it should be possible to prescribe the manner of pruning suitable to each of the commonly grown varieties. The experiments, the results of which are summarised in a lecture* by Mr. N. H. Grubb, M.Sc., of the East Malling Station, were made on maiden trees planted in 1913 and 1914. For the first three years from planting they were all treated alike, but subsequently were treated differently with respect to pruning. The varieties on which the experiment was made included strong growing kinds—Newton Wonder, Beauty of Bath, Lord Derby, Norfolk Beauty, Annie Elizabeth; medium growers—Worcester Pearmain, Allington Pippin, Gladstone, James Grieve, Rival, Cox's Orange Pippin and Grenadier (on Crab stock); and weak growers—Lane's Prince Albert, Grenadier (on Paradise stock), Early Victoria and Bismarck. The methods of treatment to which specimens of each of these varieties are being subjected are 1, not pruned; 2, open-centre pruned; 3, tipped and long-spur pruned; 4, tipped and short-spur pruned—all of which methods are in current practice, one by one set of growers, another by another set. It should be remarked that in open-centre pruning the object is, as the term implies, to keep the tree basin or bush shaped, and pruning consists in removing inward-growing main branches and (since 1920) in spur-pruning superfluous shoots. In the tipped and long-spur pruned method the leaders are shortened, strong growers by one third of their length and medium and weak growers by half their length, and all laterals not needed for branches spurred to three prominent buds. In the tipped and short spur-pruning the treatment is the same, except that the spurring is more severe—to one prominent bud. Needless to say, in the year after spurring, the treatment varies with the result of the operation—if a fruit bud forms on the spur shoot, the latter is cut back to it; if one has not formed, the original lateral is shortened to about three-quarters of an inch. Comparison of the results obtained by these diverse methods is most interesting. In practically all cases, tipping and spurring reduces in the early years of life of the tree the amount of blossom, and although a higher percentage of the blossoms set on the tipped and spurred trees than on the unpruned trees, the weight of fruit is less on the former than on the latter. So far it might seem as though the advocates of no pruning were justified by these results, but further study of the subject does not support this view. For, in the first place, the size of the fruit—an important factor in determining value—is greater in the case of tipped and spurred than in that of unpruned trees. It would appear, moreover, that the checking of exuberance of blossoming in the early years is of subsequent advantage to the grower, for among other things this method of pruning tends to check the habit of bearing in alternate years (biennial bearing) which is often so disadvantageous to the grower. Indeed, Mr. Grubb is of opinion that an adjustment of the method of pruning so as to reduce the amount of blossom carried in the "fat" year may cure trees of this bad biennial habit. He suggests that to secure this object trees should be pruned hard and their spurs severely shortened in the winter following a lean year, and that after a heavy crop only very light pruning should be practised. The advantage of pruning over non-pruning is, however, most clearly shown by the much lighter nature of the attack by disease on the tipped and spurred trees. For example, scabbed fruit occurred in 1919 to the extent of forty-five per cent on unpruned trees, whereas it amounted only to ten per cent. on long-spur pruned trees of corresponding varieties. Mildew, again, was thrice as plentiful on unpruned as on pruned trees, and canker also attacked unpruned trees more frequently than pruned. A comparison of the results obtained by the several methods of pruning is perhaps premature, and will at all events be more convincing when the experiment has run for a longer period. Generally speaking, the results obtained by open-centre pruning stand midway between those produced by long-spur pruning and not pruning at all. With short-spur pruning, blossom reduction is generally greater than with long-spur pruning. In certain varieties, e.g., Cox's Orange Pippin and Lane's Prince Albert, it has the ill-effect that many of the severely-pruned laterals fail to develop and die back, other varieties, e.g., Lord Derby and Gladstone, do not show this effect. Tipping seems to be specially beneficial in the case of those varieties which do not hold themselves up too well, but get weighted down by a crop, e.g., Allington Pippin, Lane's Prince Albert, Cox's Orange Pippin, and to a lesser extent, Lord Derby and Grenadier. Nevertheless, of these varieties, Allington has shown itself to require very careful treatment. For some years after planting it should be tipped to keep the branches off the ground, but as it comes into bearing—say in the sixth or seventh year—tipping should cease almost entirely, as otherwise the tree grows like a hedge. Tipping also causes certain varieties to furnish their branches with spurs. This applies to Bismarck, Worcester Pearmain and Newton Wonder. It should be noted, however, that certain varieties will spur their branches as they get older and require no tipping to help them do it. Bramley's Seedling is an example, and so is Norfolk Beauty. All who take an intelligent interest in one of the most interesting operations of the garden should study Mr. Grubb's article with attention, as a valuable contribution to a subject which has hitherto been apt to be treated in a far too rule-of-thumb manner.

Appointments.—We learn from the *Kew Bulletin* that Capt. W. B. Dowson, B.Sc., has been appointed Superintendent, Agricultural Department, Nigeria; Mr. H. Nicholas, Assistant Superintendent, Agricultural Department, Gold Coast; and Mr. F. S. Lyne, late Superintendent of the Accra Sisal Plantation, Gold Coast, as Director of Agriculture, Seychelles.

Glasgow Flower Shows.—A flower show will be held in the Kelvin Hall, Glasgow, for four days, commencing on September 5. The show is promoted by the Glasgow Corporation in conjunction with the Glasgow and West of Scotland Horticultural Society. The schedule includes nearly 400 classes, and a sum of £1,500 is offered in prizes. Among the special awards are a challenge cup of the value of £50, offered by the Corporation; *The Glasgow Herald* Challenge Cup, of the value of £40, and several other cups and trophies. The Secretary is Mr. J. Carrick Kerr, 38, Bath Street, Glasgow.—The Scottish National Sweet Pea, Rose, and Carnation Society will hold its annual show in St. Andrew's Hall, Glasgow, on Wednesday and Thursday, July 25 and 26. In addition to a large number of money prizes there will be offered for competition the Burpee Cup, for Sweet Pea exhibits, three cups, a bowl, and a gold medal for Roses; the Irvine Valley Cup for border Carnations, and a number of medals and other special awards. The show is confined to Sweet Peas, Roses, and border Carnations The honorary secretary of the society is Mr. John Smellie, Helensburgh.

A New Genus of Bamboo.—Mr. J. S. Gamble, in *Kew Bulletin*, No. 2, 1923, refers to a new genus of Bamboo published by Mlle. A. Camus, in the *Bulletin of the Musée National d'Histoire Naturelle.* The genus is close to Schizostachyum; the only apparent difference, according to Mr. Gamble, is that the stamens are monadelphous instead of free. The new genus is named Neohouzeaua. Mlle. Camus has described two species, N. mekongensis, and N. Dullooa, which had been previously placed by Mr. Gamble in the genus Teinostachyum, and a third species, N. tavoyana, Gamble, is stated to be intermediate in the size of the spikelet.

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* *Journal of the Royal Horticultural Society*, 1922.

and also in the size of the leaves, between N. Dullooa and N. Helferi (syn. Teinostachyum Helferi).

Wart Disease of Potatos on Allotments.—Many allotment holders on whose land Wart disease of Potatos has occurred in past years appear to be under the impression that, provided no trace of the disease has been seen for two or three years, they are at liberty to plant varieties which are susceptible to the disease. This is not the case. The Wart disease of Potatos Orders require that on land on which Wart disease has been known to appear at any time, only approved, immune varieties of Potatos from stocks officially certified to be true to type and reasonably free from rogues, may be planted. The only exception to this regulation is that immune varieties saved by the plot-holder from last season's crop may be planted. It is most important that occupiers of infected land, whether allotments, gardens or fields, should remember and act upon this regulation, for not only does the planting of susceptible varieties in infected soil render the offender liable to a penalty of £10, but it is practically certain to ensure the reappearance of the disease which, in its turn, means a serious loss to the grower.

"Index Kewensis."—The compilers of the quinquennial supplements of this erudite work appeal to authors to indicate the first time a new group or combination is used by adding the sign *n. sp.* or *comb. nov.*, and also to cite the synonyms on which they are based. Much labour in searching will also be obviated if reference is given to the work in which the original combination occurred or an indication that the combination is being used for the first time.

Kurume Azaleas.—Mr. Pericat, of Collingdale, Pa., U.S.A., has, according to the *Florists' Exchange*, a stock of over 50,000 Kurume Azaleas, and he is of the opinion that if plants could be established for a few years, they should prove to be hardy. They have an advantage over the Indian Azaleas, in that they do not need grafting, but may be propagated freely from cuttings. The American growers are turning their attention to these Azaleas for forcing as a substitute for the Azaleas formerly received in large numbers from Continental growers.

Legacies to Gardeners.—The late Mr. Edward Pilkington, of Norwood, Alderley Edge, Cheshire, left a life annuity of £104 to his gardener, Mr. Ebenezer Turner, if in his service and not under notice or in receipt of a pension or superannuation allowance, and, should his wife survive him, she is to receive for the remainder of her life an annuity of £78. The late Hon. Arthur Ralph Douglas Elliot, of Dunbloa, Freshwater Bay, Isle of Wight, left £50 to his gardener, Mr. William Newnham.

Garden Firm's Contribution to the Middlesex Hospital.—Messrs. Pulham and Son have forwarded a cheque for £28 2s. 9d. to the Governor of the Middlesex Hospital, being the proceeds of the sale of post-cards illustrating the firm's exhibit (Princess Mary's Garden) at the recent Ideal Home Exhibition, at Olympia.

London Gardens Guild.—The London Gardens Guild embraces twenty-nine branches and affiliated societies, and has for its object the promoting of planting and tending of gardens in the industrial districts of London, and the initiation and encouragement of garden competitions and flower shows. The ninth annual report of the Executive Committee shows that the movement is growing, and that the flower shows held by branches and local societies during the past year were, for the most part, very successful. Prizes are offered during the forthcoming season for the best cultivated back, front, and window gardens, and medals will also be awarded for the best gardens in all London. The Guild has its headquarters at 124, Walworth Road, near to the tube station, and is therefore much more accessible than hitherto. The forecourt of 124, Walworth Road—a main street—will be laid out by the Guild during the coming summer as a model garden.

Mr. Richard Gill.—The Rhododendron is the fashionable flower of the moment, and the popularity of the genus is increasing as a consequence of the introduction of many new species from China; but there must be a foundation for the popularity of any flower, and this must be well and truly laid. Garden Rhododendrons have long been favourites, and in the warmer parts of this country and in Ireland the garden hybrids which have some Himalayan species as an ancestor have raised the enthusiasm for these gorgeous shrubs to a high degree. One of those who helped to lay the foundation of this popularity—happily still with us—is Mr. Richard Gill, who commenced his horticultural career when twelve years of age in the gardens at Tremough, in the service of the father of the present Mr. Shilson. The Tremough estate was even then famous for its fine Himalayan Rhododendrons, and young Gill took a keen interest in the plants. At the early age of twenty years he became head gardener at Tremough, a position he continued to hold until some years ago, when he took over the gardens for his own nursery business. In his younger days Mr. R. Gill was famous in the West of England for the very fine specimen Heaths, Azaleas and other hard-wooded plants he grew and exhibited most successfully. He also won a high reputation for the skilful cultivation of Chrysanthemums. It is, however, with Rhododendrons that the name of Gill is most closely connected, for he has raised a fine series of varieties of Rhododendron arboreum and a magnificent set of large flowered hybrids, of which Gill's Triumph, Gill's Goliath, Beauty of Tremough, Glory of Penjerrick, Duke of Cornwall, Duchess of Cornwall, Richard Gill, Ernest Gill and—the newest and best—Norman Gill, are a few of the most striking in regard to colour, form and size of truss; these and others have been exhibited by the firm at recent R.H.S. meetings at Vincent Square. Mr. Gill is testing many of the newer Chinese species and making crosses, but he is of opinion that the older races will not be superseded as plants for garden decoration. Both of Mr. Gill's sons are horticulturists; the elder, Mr. R. E. Gill, is in partnership with his father in the nursery, seed and florists' business, established at Tremough, Penryn and Falmouth, and has been deputy mayor of the last town. The younger son, Mr. Norman Gill, is superintendent of the Government Gardens at Kumaun, India. Mrs. Gill is also a keen horticulturist and a particularly clever artist, who paints portraits of the new Rhododendrons and has made a fine series of paintings of fungi, a collection of which was exhibited at a comparatively recent meeting of the Royal Horticultural Society.

MR. RICHARD GILL.

Ghent Quinquennial Exhibition.—The Southern Railway Company is arranging fo the issue of excursion tickets from London to Brussels and Ghent in connection with the Brussels Commercial Fair and the Ghent Quinquennial Exhibition. These tickets will be available for fifteen days, commencing on either April 6, 7 and 8, or April 13, 14 and 15. Certain tickets are issued via Calais and others via Ostend, and the latter are extremely reasonable in price. Excursion tickets to Brussels may be obtained from the company's agents in the usual way, or from the departure station, but excursion tickets to Ghent will be available only at Victoria Station, and may be obtained there on application.

Gardeners' Royal Benevolent Institution Festival Dinner.—The seventy-eighth anniversary festival dinner in aid of the funds of the Gardeners' Royal Benevolent Institution will be held at the Hotel Victoria, London, on Thursday, June 28.

Sandy Flower Show.—We have received a preliminary announcement to the effect that the Sandy Flower Show will hold its jubilee exhibition on August 30. To celebrate the occasion a special attraction in the horticultural section will be a class for a group of cut hardy flowers arranged on a space twenty feet by eight feet, and open to all exhibitors. Display are to be arranged on the ground, and hardy and half-hardy annuals will be admitted. Si prizes are offered, respectively of £10, £8, £6 £4, £2 and £1. The secretary is Mr. F. W Western, Sandy, Bedfordshire.

Appointments for the Ensuing Week.—Monday, April 9: United Horticultural Benefit an Provident Society's meeting; Bath Gardeners Society's meeting; Reading and District Gardeners' Mutual Improvement Association's lecture on "Fruit-growing in Berkshire." Tuesday, April 10: Royal Horticultural Society' Committees meet (two days); Jersey Gardeners Society's meeting. Wednesday, April 11: Eas Anglian Horticultural Society's meeting; Shef field Chrysanthemum Society's meeting. Thursday, April 12: Royal Horticultural Society' Daffodil show (two days). Saturday, April 14 Ghent Quinquennial Exhibition (nine days).

"Gardeners' Chronicle" Seventy-five Yea Ago.—*Cottage Garden Allotments.*—I am full persuaded, from many years' experience letting out allotments, though I have not unt last year distributed prizes for the culture vegetables, that such a mode of encourageme very greatly contributes, in many respects, the happiness, order, and prosperity, not on of a neighbourhood but of the community; fo certainly, it must be acknowledged that wha ever conduces to improve the moral characte and industrious habits of our labourers, sweeten their toil, and to make their homes mo comfortable, and especially to promote a r ciprocal feeling and good understanding betwee the employer and his servants, who are, course, mutually dependent on each other, is patriotic intention, and a most likely means begetting and preserving happiness and conten ment. The present season of the year is mos favourable for the commencement of grantin allotments to labourers; and the disorganise state of continental Europe (and it is impossib to foresee what evils may result from rece tumults, and what may be the effect even upo the quiet habits of the English labourer fro such a lamentable precedent) demand of eve one who has it in his power to alleviate th necessities and to mitigate the privations of labourers, as well as to remove all just caus for murmuring and discontent, and to mak them sensible of the blessings of order, harmon and peace. "For all of us in our several pos tions and grades of society to do our duty in th station of life in which it has pleased God place us, and to fill up our proper place in proving, faithfully and diligently, and wisel the talents and tasks committed to us is ideal and transitory notion or fallacious beguil ment of liberty, equality, and fraternity," b a permanent source of peacefulness, happines and satisfaction. *H. D., Chipperfield, Ric mansworth. Gard. Chron., April* 1, 1848.

THE BULB GARDEN.

THE GLADIOLUS.

Up to the time of writing the condition of he ground has not allowed a Gladiolus corm o be planted. I have started so early as the ast week in February, but I do not remember uch a late start as will be made this year. The corms are in many instances showing, by the thrusting forth of their roots, a desire to e placed in mother earth. Good average soil will produce good average flowers, but no flower esponds more readily to high culture than the Gladiolus. In other words, the ground should have been well prepared during the autumn, and dug over again prior to planting, adding a little lime and bone meal.

To prolong the flowering time it is a good plan to plant at intervals of two or three weeks up to the first week in June. The corms should be planted four inches deep or more, and from our to eight inches apart in the row, allowing ifteen inches to two feet between the rows. The deeper planting will help to keep the plants from falling over when in bloom.

After planting keep the surface clear of weeds, and as soon as the plants show through he ground, start to keep the soil well worked. Do not allow the soil to cake hard after rain or watering. Remember the Gladiolus loves unshine and moisture, so in dry spells a good watering should be given every seven or ten days. If watering is done in the evening and the soil well worked the next day, the surface will not cake.

When the bloom spikes appear, surface cultivation should not go more than two inches deep. At this time a further sprinkling of steamed bone meal or other good fertiliser should be raked in between the rows to good purpose.

The question of what varieties to plant is a matter for individual taste. If one is plantng for the first time, then, in addition to the ow-priced varieties, a few new varieties should be obtained, three to five corms of a sort. Most varieties will grow in any ordinary garden soil, but some do better than others, and by trying a few of the new introductions a grower will be able to select those which give the best return. Messrs. Barr and Sons, and Messrs. Lowe and Gibson, list a fair percentage of the newer sorts.

Growers with small gardens would do well to make their chief selection from the Primulinus hybrids, as the colours in this section and the form of the spikes lend themselves more readily to table and indoor decoration. Further, they do not require so much attention as others in the matter of staking. If wanted for indoor decoration cut the spikes when the first flower is open, and let the other blooms open in the house. Each spike will last from seven to ten days. Few flowers will repay the care and attention given it than the Gladiolus. So

"Where grows it not? If vain our toil,
We ought to blame the culture, not the soil."

Smilax.

THE ALPINE GARDEN.

ARENARIA VERNA.

Arenaria verna is a very old and favourite plant of mine. Years ago when I was at school in Yorkshire I used to go and look for it—out of bounds—among the old lead workings on Attermire. In those days its chief interest for me was that it was a delightfully pretty little plant and one of the rarer natives. It now has for me the added charm of being an invaluable small plant for the rock garden. It is one of the very best plants for associating with Gentiana verna to keep it clean and healthy. Arenaria verna forms close fairy turves of the very finest emerald velvet. In June it covers itself with countless tiny star-flowers, white, with pink anthers, carried low on stems of green thread. It is, moreover, perfectly easy to grow in any good light soil.

For forming a turfy groundwork in the alpine lawn garden Arenaria verna is the ideal plant. No one has yet discovered a suitable grass for the alpine lawn. "Exhaustive and painful researches" to this end seem only to have revealed, even enhanced, the hedgehoggy stubbornness of grasses.

In nature Arenaria verna has a strange appetite. It seems to crave a diet of lead. On Attermire it haunts the neighbourhood of the old disused lead mines, and on Ingleborough when I collected the plant two summers ago the rock is full of curious veins and indications of lead. It is also found at the Lizard and in other plumbiferous districts of Cornwall. If I were prospecting for lead I should (not being a geologist) study local floras and go to the stations given for Arenaria verna, feeling pretty certain that there I should find at any rate traces of lead. Yet there is no need in the garden to provide Arenaria verna with a score of lead filings. It is quite content in cultivation to forego this odd craving, just as many plants which in nature cling rigidly, some to calcareous, and others to lime-free soils, prove utterly indifferent as to lime in the garden.

In spite of its undeniable daintiness and charm Arenaria verna has hitherto remained almost unknown and ungrown by rock gardeners. Hence this note. *Clarence Elliott, Stevenage.*

OENOTHERA TARAXICIFOLIA.

There is much confusion in the names of the Evening Primroses, as is evidenced in some degree by this plant. A high authority regards it as the same as Œ. acaulis, while another informs us that the latter has yellow flowers; whereas Œ. taraxicifolia has white blooms. It is probably more convenient, therefore, to give it by its best-known title of Œ. taraxicifolia, especially as seeds are generally sold by this name, and it is exceedingly descriptive of the appearance of its foliage, which is quite like that of a Dandelion. So like is it, indeed, that more than once I have had plants of this Evening Primrose, when not in flower, pulled up by helpers in the garden, whose zeal was much greater than their knowledge, and who had no hesitation in pouncing upon these "Dandelions," and glorying in the fact that they had eradicated them, while I was left lamenting, especially as the "weeds" had been destroyed.

It is a very pretty plant for the front of the border or the rock garden, with, perhaps, just one weakness, and that is its inability to withstand severe winters when growing in heavy soil. It does best on well-drained rockwork, and in light sandy, gritty soil it has every chance of living for several years. Some have considered it a biennial, but it is a perennial. It makes a low tuft of Dandelion-like leaves, which are a masterpiece of mimicry of those of that all-pervading weed, but above these rise the wonderfully beautiful white flowers in summer. They may not have the grandeur of the difficult Œ. eximia, or marginata, but the plant is much easier to raise and grow. Seedlings are very easily raised in a cool or cold greenhouse or frame. Sow the seeds in pots in light soil in April; prick out the seedlings about two inches apart when big enough to handle, and plant them out, where they are to bloom in June or July. A little group of the Dandelion-leaved Evening Primrose is a feature of pronounced beauty on the rockery. *S. Arnott.*

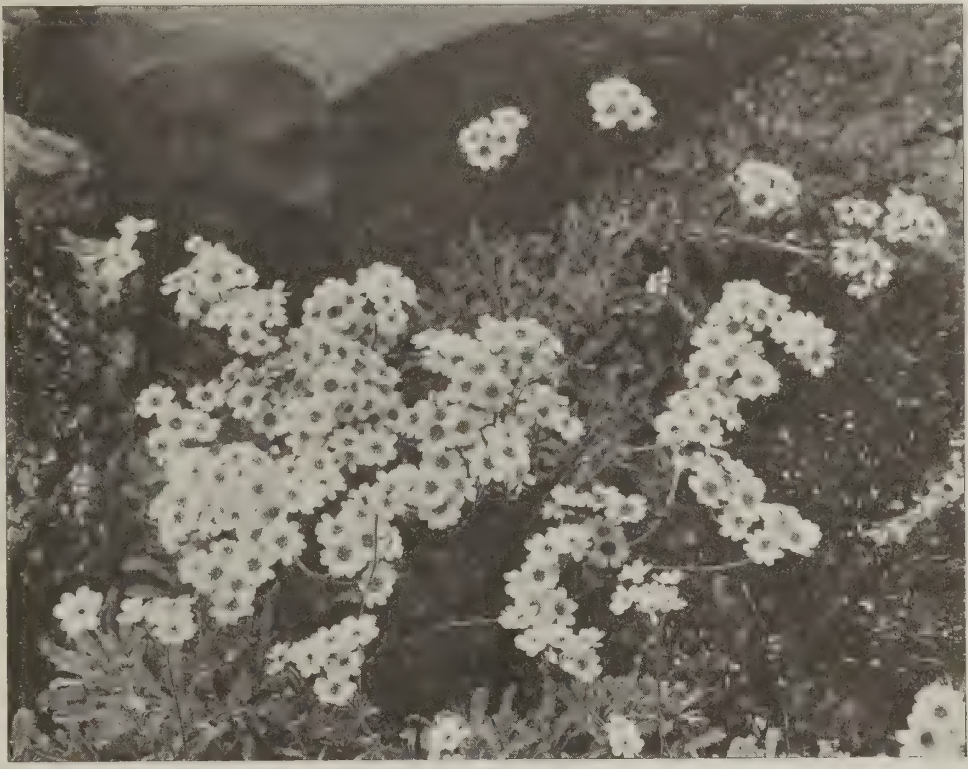

FIG. 83.—ACHILLEA ARGENTEA.

ACHILLEA ARGENTEA.

Some of the dwarf Achilleas are excellent rock garden subjects, of which one of the best is the species illustrated in Fig. 83. There is some doubt as to its origin, whether it is a wild species or whether it is of garden origin; but of its merits as an ornamental and charming plant for a sunny position in the rock garden, there is none whatever. It is a low, almost sub-shrubby alpine, with tufts of silvery leaves which are pinnately lobed to the midrib, while the flower stems, three inches to four inches long, bears umbels of from four to six large, white flowers, in June and July.

The plant grows well in light warm soils, but it is most at home on a well drained ledge in a sunny situation. It should be planted in a very gritty medium, from which surface moisture soon drains away, as excessive wet in winter is fatal to success with this plant. It is easily propagated by means of cuttings in June or July, as well as by division in early spring.

Other members of the family with almost the same habit, and equally of value as companions to the above are: A. rupestris, with entire, silvery leaves; A. ageratifolia, with larger flower heads produced singly on short stems; A. umbellata and A. conjuncta. *W. I.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Laelia monophylla.—The bright scarlet Laelia monophylla has always been considered a difficult subject to import and establish successfully, and even now is somewhat rare and seldom seen, but when once established and well rooted, and not allowed to exhaust itself by over flowering, is a plant of easy growth. When grown under similar conditions as Miltonia vexillaria, it will succeed admirably. If the plants require fresh rooting material, now is the best possible time to afford the same. Place them in small, well drained pots, using similar material as advised for Cattleyas, but cut up finely. Pot each plant firmly. These Orchids, being of small stature, are best grown near to the roof-glass, where they will receive plenty of light. Strong sunlight, however, must be guarded against at all times.

Miltonia.—Miltonias from now onwards and until their flowers are fully developed, need watering whenever they become dry. During the winter and early spring the leaves of Miltonias are very liable to turn brown at the tips, and this, if the growths are weak, is a sure indication of using too much heat and moisture and not sufficient air. Plants that are in full growth and not in flower may be lightly sprayed on sunny mornings as a preventive of insect pests.

Oncidium.—The various Oncidiums in cultivation come from widely different latitudes and altitudes in tropical America, and necessarily require different treatment to cultivate them successfully. Some species adapt themselves to the conditions of our plant houses, whilst others behave in a most indifferent manner, it being almost impossible to keep them in a vigorous condition over a series of years. An intermediate temperature suits the majority of them, whilst some delight in considerable warmth, and others again do best in the coolest house. Oncidium sarcodes is a most difficult plant to maintain in a healthy condition, but I have found it succeed in the warmer end of the intermediate house, in a rather shady place. Oncidium Lanceanum is another generally troublesome species, although it is often seen growing freely, and doing as well as any plant in the house. This species enjoys the conditions of the warmest house, where its broad, leathery leaves will withstand a considerable amount of sunshine. Oncidium carthaginense may be cultivated under the same conditions, whilst there are several other species which are not often seen at the present day, worth growing, and undoubtedly if again imported, will be much sought after.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Ceanothus.—Gloire de Versailles is one of the best know varieties of the blue-flowered Ceanothuses, the pruning of which may be done now. Cut back last year's shoots to within two to four buds, according to the strength of the growth, whether the plant be growing as a bush in the open or against a wall as a climber, allowing, however, any extension of strong shoots necessary for the additional furnishing of the wall or for altering the symmetry of plants in the open border. This shrub is not hardy everywhere in open beds; in very cold districts it should be planted against a warm wall, and in severe winters the branches covered lightly with some protective material. A well drained rooting medium contributes to the successful cultivation of this plant. Of the evergreen species, the best I am acquainted with is C. Veitchianus, which flowers in early June. It is necessary to grow this species against a wall, and to give the plant a little extra protection in hard winters. Should any cutting back of this and similar kinds be required, it should be done after the flowers are over.

Hardy Fuchsias.—The pruning of these graceful plants may be also undertaken with reasonable hopes of being safe from harmful frosts. Cut unripened shoots of last season well back, also small, weakly growths, and adjust other stems according to their vigour and the outline of the bush. Where protection is not afforded these plants, they are damaged by frost so badly as to necessitate being cut down almost to the ground level in spring; but they invariably send up fresh growths from the root-stock.

Evergreen Edgings.—There are several kinds of evergreens suitable for use as edging plants, but the commonest used are Box, Ivy and Vinca minor, all of which may be cut now with the shears to keep the plants within bounds and preserve some degree of neatness around the beds and borders. For the same reasons a second trimming is advisable about half-way through the season. The present is a timely season for making good any gaps in edgings of this character.

Dahlias.—These plants are easily propagated from cuttings or division of the old roots. For the former method a hotbed is helpful. When the shoots are about two inches long, they may be inserted in small pots filled with sandy soil; after they are rooted, pot the plants singly and transfer them to a cold frame. Divided plants may be accommodated in boxes, making sure there is a growing eye with every portion planted. A mild temperature will excite the plants into growth, and they should be hardened in their early stages in the usual way.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Strawberries.—Pot Strawberry plants in fruit standing on shelves and fully exposed to the sun and air should on no account suffer from drought at the roots, dryness under such conditions rendering the berries hard and seedy. When the fruits on the early batch of plants are colouring, maintain a drier atmosphere, and admit air freely whenever it is possible to do so. Withhold stimulants, and use the watering-pot with great care. Plants on which the fruits have set will, if given generous treatment, swell their berries rapidly. Reduce the number of the latter on each plant to six or eight, according to the strength of the plant, at an early stage. Maintain a genial atmosphere, and guard against an excess of fire heat, which would be favourable to the spread of red spider. Ventilate the house with care when cold winds blow, or mildew may develop on the leaves and fruits. An occasional syringing with a mildew specific when the fruit is swelling will help to keep the plants clear of the fungus during the ripening period.

Cucumbers.—The early plants are showing the effects of the continuous lack of sunshine, and although growth is fairly rapid it is inclined to be weak and long jointed. Early attention should be paid to pinching and tying in the young growths. Rub off any superfluous shoots, allow ample space for leaf development, and do not overcrop the plants, particularly in the early stages of growth. When the roots show freely through the surface soil apply a top-dressing of good turfy loam, leaf mould and old plaster rubble, with a sprinkling of wood-ash added. Maintain a steady bottom-heat of about 80°, with an overhead temperature of 65° to 70° by night and 75° to 80° by day. Further sowings of seeds in small pots should take place according to requirements, and the preparation of fermenting material for making up the necessary hotbeds should receive consideration.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Asparagus.—The beds of Asparagus should be raked over, and the manure dug into the alleys, which will be useful for planting early Cauliflowers, etc., in later. The sides of the beds will give the young plants protection from cold winds. Raised beds are much better on heavy land, to allow the superfluous moisture to drain away freely, but on light, dry soils, almost flat beds are preferable. In any case, keep them clean by hand-weeding.

Cucumbers.—Sow another batch of seeds to obtain plants for succeeding the earlier ones, and in the same manner as previously advised. Treat the plants generously now that the days are getting warmer; pot them on in five-inch pots if the beds are not quite ready for them, rather than let them become root-bound in the seed-pots. Plants growing in the beds should have some rich soil placed round the roots as soon as these show on the surface, and a little artificial manure sprinkled over the soil and watered in, when they come into bearing. Keep the growths tied to the trellis regularly, takin out any that cause crowding.

Potatos.—Small trenches may now be taken out on land intended for mid-season Potatos, at thirty inches apart, or, if Brussels Sprouts or other Brassicas are to be grown between them, five feet apart, and the rows dusted with wood-ashes. On heavy ground it is advisable to incorporate some old hotbed manure or leaves with the soil, or even long litter from the stable-yard, as Potatos need a free root run, and good tubers cannot be expected from heavy, retentive soil. It is surprising what a difference is seen in the crop at lifting time if the nature of the soil i studied, and the necessary additions made, a the case may be. All the sets should be wel sprouted before they are planted, and do no plant old "seed."

Lettuces.—Continue to plant Lettuces i frames if available, and sow more seed to obtai seedlings for pricking out in the open later.

Horseradish.—Roots of this vegetable, eac with a crown and about six inches long, shoul be planted in deeply-dug ground, in rows mad about one foot apart and set nine inches asunde in the rows; place the crown about six inche below the surface, and when the bed is finished fork the soil lightly and afterwards keep it fre from weeds. Where Horseradish is much i demand, it is well to have two beds, replantin them alternately each year, as young roots ar much preferable to old, coarse ones.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botani Gardens, Kew.

Veronica Hulkeana.—This species is the mos beautiful of the New Zealand Veronicas, an although hardy against a wall in the south an west is well worth growing in pots for th greenhouse. It is an uncertain plant out-of doors, and its successful cultivation in pots i by no means easy. Cuttings root readily at thi time in a close case; if they are grown on an stopped several times they will make goo specimens next year for the decoration of th plant stage. These same plants grown on th second year will make large specimens, but the require very careful management. They shoul be grown in quite cool conditions with plent of air; in their younger stages they may b grown in cold frames.

Veronica diosmaefolia.—This is a small, compact-growing species which flowers during th spring, and is very pretty for furnishing th plant stages. It is easily propagated at thi time by means of cuttings rooted in a cool cas When rooted and grown on in 48-sized pot they naturally form neat, compact plants without pinching.

Buddleia asiatica.—Although an old garde plant, this Buddleia is very seldom seen i gardens now, which is very surprising, consider ng how graceful it is, with its long, slender prays of white, delicately scented flowers. It as the added merit of flowering during the vinter when flowers are by no means plentiful. uttings may be rooted at this time in a close ase provided with slight bottom heat, choosing lender, twiggy growths for the purpose, for he young shoots being covered with a woolly omentum, stout pieces are liable to damp off. rown on in 6-inch pots, and stopped twice, they ake good subjects for the plant stage during heir first season. These plants are, however, t their best condition in their second year, rovided they are pruned back about this date, nd potted on into 8-inch or 10-inch pots. In his way they will make fine large specimens, uitable for standing in the conservatory beds. uring the summer they are best stood out-of-oors on a bed of ashes. This plant is also itable for clothing a pillar in a large, cool ouse.

THE HARDY FRUIT GARDEN.

y A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Fructification.—It is very desirable that bees ould be kept in or near a garden, otherwise will be wise to resort to pollination, in the ase of Apricots, Plums and Peaches, and cer inly for shy-setting varieties. The weather nd other conditions may be blamed for a light uit crop, but it is slowly and surely becoming ecognised that fruit must be assisted to set. ome growers cut sprays of free-setting Apples nd distribute the pollen by hand. Others top raft branches of other varieties here and there he latter is probably the most satisfactory ethod.

Peaches and Nectarines.—The trees have re-ponded to the warm and humid atmosphere f the past few days, and it will be necessary consider the disbudding of the growths. isbudding should be done at intervals, as it ould not be advisable to remove too many of e young shoots at one operation. Retain nly those shoots that are necessary for the roper formation and extension of the tree, nd in wall trees secure firm and good fruiting ood over the whole space of wall occupied y the tree. The terminal and basal shoots re the important ones to retain, and the ntral one may also be necessary. It may appen that there is only sufficient room for e basal shoot; all others may then be opped, and also any shoots of undue strength. he growths of these trees are often trained o thickly, with the result that the increase f insect pests is favoured, the foliage is ramped in its development, and the wood gets nproperly ripened, especially in such seasons s last year.

PUBLIC PARKS AND OPEN SPACES.

The National Trust for Places of Historic terest or Natural Beauty has acquired the anorial rights in Bookham Common for the m of £4,450. Bookham Common is a vourite pleasure centre to the north of ox Hill, and its area is three hundred acres. he manorial rights were sold last year, d the new owners disposed of some of e timber, and although a certain number f trees have already been felled, the Trust esires to retain those still marked for felling, nd for this purpose requires a further sum of 500 to £600.——We are pleased to learn that 5,200 has been subscribed towards the purchase f the piece of land in the neighbourhood of ox Hill, to which reference was made in *Gard. hron.*, p. 76, leaving about £1,800 still to be aised. The very handsome sum of £1,000 was ontributed by a reader of *Country Life* living n Rio de Janeiro, conditional on the purchase eing completed before September 30, 1923, and e further offers to subscribe the last £1,000. —The London County Council has under con-ideration a proposal to form an old English arden on part of the nursery site in Victoria ark.

TREES AND SHRUBS.

PYRUS SCHEIDECKERI.

The abnormal weather at the end of March, when the thermometer on one day, the 27th, registered 68.2° in the shade, resulted in a transformation of the landscape, for trees and shrubs burst rapidly into bloom, as though they had been straining at the leash, waiting for the weather to turn. Of a sudden the countryside appeared to be white with the blossom of Plum trees. Gardens became the gayest of places, owing to the numerous spring bulbs and other vernal blossoms, but the greatest display was made by the early-flowering Prunuses. The gay scene will be continued by the later-flowering trees, of which Pyrus Scheideckeri is one of the most floriferous

The illustration in Fig. 84 shows what a glorious sight this ornamental tree of the shrubbery and lawn presents when in full bloom, and the expression "riot of blossom" is fully justified when applied to this beautiful tree. Its origin is somewhat uncertain, but it is commonly supposed to be a hybrid between P. floribunda and P. spectabilis. Bean, in *Trees and Shrubs Hardy in the British Isles*, states that this tree and its reputed parent, P. floribunda, are the two finest of the fruiting Crabs, an opinion that the specimen illustrated fully justifies.

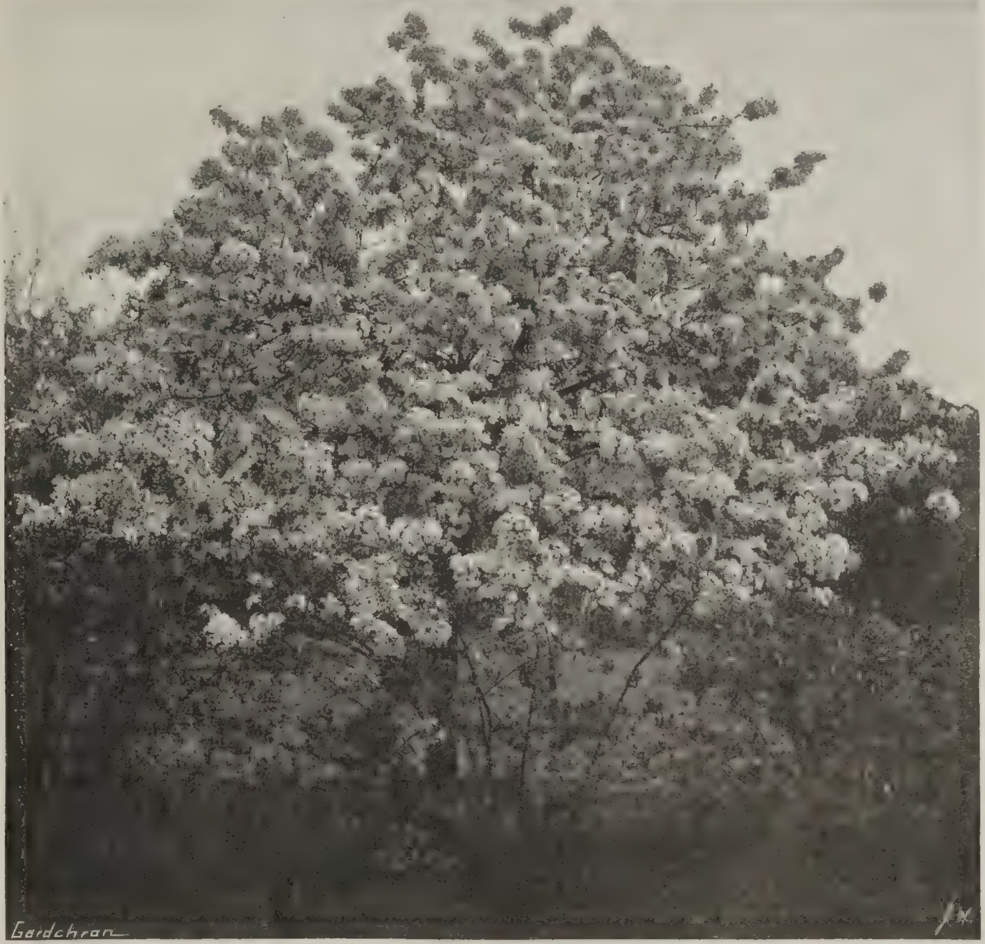

FIG. 84.—PYRUS SCHEIDECKERI.

PRUNUS CERASIFERA AND VARIETIES.

I have never seen these flowering trees more beautiful than they are this season. At present they are a distinct feature in the canal beds at Kew. The large trees of the type tower above the varieties and are upwards of 25 feet high, with spreading branches and a cloud of flower; the varieties with purple foliage are more dense and rounded in habit.

Prunus cerasifera var. atro-purpurea (syn. Prunus Pissardii, of nurseries) still maintains its popularity, but the two varieties P. cerasifera var. Blireiana and P. cerasifera var. Moseri are not cultivated nearly so extensively as their merits warrant. At present they are making a glorious display with their semi-double, rich rose-pink flowers, the former being deepest in colour and the better of the two. Both develop the purple foliage and habit of P. Pissardii.

According to Mr. Bean, in his book on *Trees and Shrubs Hardy in the British Isles*, these varieties are of Continental origin, and I have been pondering over their derivation; from what do they inherit their lovely colour and large flowers? On close examination of the flowers I find the ovary and style are covered in soft, silky hairs, but not so the type or in P. Pissardii, in which these organs are perfectly smooth.

I have never seen the fruits, if fruits do develop on these semi-double varieties; fruits doubtless would be the determining factor. From a casual glance at the trees there is a resemblance to P. Mume var. flora plena rosea, which is now in full beauty and greatly admired, having the additional merit of sweetly-scented flowers. Those acquainted with P. Mume know at once it is an Apricot, distinctly seen in the bright green twiggy growths.

Having introduced the subject of Apricots, it is worth while to mention the Siberian Apricot, P. sibirica, now very showy with its rose-pink flowers, evidently a tree slow in growth and hard-looking, yet for all that interesting.

Prunus cerasifera var. gigantica is a variety I cannot fathom; perhaps the varietal name suggests the size the tree attains, as it is after the style of type, but it is so much later to flower than the others. It is now only in the small bud stage, and will be some time before it is fully in flower. *B. F. C.*

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EASTER IN COVENT GARDEN

It is curious that Rudyard Kipling, whose inquisitive genius has led him to explore and illuminate so many aspects of human activity, has never, so far as we can remember, described the amazing wealth of flowers which Covent Garden exhibits in Easter week. There you may buy our English posies or acquire the floral produce of the Islands—Guernsey and the Scillies, or have the precocious blossoms of the Riviera, or those which come from Holland and even from Italy. Of all this display of bloom, cut foliage and pot plants, that which comes from the early districts of England can hold its own with the best of the flowers which come from more favoured climates. To Covent Garden Flower Market nothing comes amiss, and in it enterprise not infrequently meets with its reward. The farmer's daughter who sends her cardboard boxes of closely bunched Primroses may, perhaps, not receive in return for her early morning labours the pin money which she looks forward to, but, on the other hand, the grower who first thought of putting fine foliage on the market must have done well until flattering imitation obliged him to discover new outlets for his ingenuity.

At Easter time white flowers are conspicuous in the market, and there are kinds for all folk. Arum Lilies, of course, and Erica persoluta—fine pot plants, though not so fine perhaps this year as it usually is; the double Arabis, Allium neapolitanum, and the white, or almost white, Daffodil White Lady, and the poeticus variety Horace. But for those who want bright colours there is ample choice in Covent Garden. Of Daffodils and Narcissi you may choose between a dozen or more varieties—Barrii conspicuus, Victoria, Empress, Emperor, King Alfred, Sir Watkin, polyantha varieties such as Scilly White, Jonquils, poetaz and poeticus varieties. Tulips are there in great variety, long stemmed and plucked with their foliage, only the base of which has a yellow tinge to show that the flowers are not the produce of the open air. Of foliage plants there are Pittosporum undulatum from Ireland, and from Cornwall, Drimys Winteri to show that Cornwall knows no winter, Berberis Aquifolium, bronzed as though sunburned, and commoner, but acceptable, things, such as Box, Rosemary, Bay and broad-leaved Laurels, and even bunches of Thuja occidentalis, to be used, no doubt, in the making of wreaths. Great boulders of moss are to be had wherewith to make a bed for Primroses, and to keep the stems of other plants moist. Of Irises, there are Spanish—particularly Franz Hals and Rembrandt—and I. filifolia, and a new-comer among forced plants, the big, bearded Irises.

For those who prefer living plants there is an equally large choice. Perfectly grown Cyclamens in miniature pots attest the skill of British growers, while Erica Willmorei is profusely blossomed, and Spiraea confusa very graceful. Cinerarias are grown to perfection, both stellata and large-flowered forms, in all the opulence of colour which these races affect—deep purple, violet and pale blue, white, pink, rose and crimson. Hydrangeas, white and blue and pink, with flower heads almost too big for their bodies, hobnob with Roses which suggest full summer in spring.

To those who are proud of the energy and enterprise shown by British growers, it is a special pleasure to see how fresh are the flowers plucked in England, well packed, in ready-made bouquets, often arranged with perfect taste. The flowers which make longer journeys from distant countries often reflect the weather they have experienced on their journey, and those from the Riviera at this time this year have lost in transit some of the advantage they enjoyed in growing in the Côte d'Azur. Some curious subjects arrive occasionally from the Mediterranean coast, and among these are graceful sprays of Eucalyptus; a species which Kew determines as E. haemastoma, with glaucous leaves, red stems and creamy flowers (Fig. 85) were on sale in Easter week. The Scillies, in spite of the handicap of storms which may delay the landing at Penzance, are sending again their flowers in large numbers to the benefit of the Islanders and for Londoners. With amazing despatch this mass of bloom reaches Covent Garden, it is passed out through the narrow exits of the market and gives a radiance welcomed in every quarter of the grey city of London. Other cities may have more spacious markets and more elaborate organisation for sales, but no other has a greater variety of flowers nor a more expeditious way of distributing them, so that the blossoms reach everyone that wants them, and every purse, no matter how ill filled, that can spare a few pence to purchase them.

MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. XII.—Over the Mekong-Yang-tze Divide.

On August 7 we started to climb the Pai-Ma La, which is 15,500 feet above sea. From Tung-chu-ling down to the Yang-tze the valley is dry, though well wooded till the last 1,500 feet is reached; but we soon entered the forest.

August is the off-season here, and I found few flowers, though a rather pretty Oreocharis with lemon flowers grew on the rocks. The small, spotted Tiger Lily was also common in the dry valley. In the middle of the day we had a heavy shower, but the afternoon cleared again. We did not get very far, and camped in the forest, or rather in a meadow on the edge of the forest. There were more flowers here—they increased in number and variety as we went higher. Nevertheless, the meadows, in spite of Primula pseudo-sikkimensis, Parnassia, blue Epimedium, Iris, Corydalis, Impatiens, and species of Geranium, looked bedraggled and miserable. The only bright colour was supplied by patches of Pedicularis siphonantha.

At dusk a dense mist came rolling up the valley and hid the peaks. Owing to the fact that half my men were suffering from mountain sickness next day, it looked as though we should get nowhere near the pass. However, we were soon up on the plateau above the forest, and, by marching till dark, managed to camp with some yak herdsmen just short of the pass, two of the giddy men riding. The morning was fine, and we even had a glimpse of the snowy peaks, which were not far from the road. But one can hardly expect fine weather on Pai Ma Shan in August, and in the afternoon a heavy storm swept across from the Yang-tze.

In the alpine zone numbers of flowers were still blooming, though here, too, August is a bad month; the spring flowers—particularly the Rhododendrons, which are such a feature of the plateau—are over; the autumn Gentians and Saxifrages are yet to come. But Meconopsis Prattii (bright blue flowers), the ragged-looking Primula Wardii (a poor thing which should never have been separated from P. siberica), and a bloodshot lavender-blue Codonopsis were all flourishing. Other species included a scree Cerastium with pale pink flowers, rather showy, with yellow Cyananthus, Corydalis, Polygonum, Pedicularis, and several Primulas peculiar to boggy places.

Of shrubs, Potentilla fruticosa, with very brilliant gamboge flowers, was the only one though here and there a dwarf Rhododendron lingered on, particularly the lemon yellow R. chryseum.

The yellow Cyananthus mentioned above and the lavender Codonopsis show interesting movements of the stamens to assist in pollination. They are both markedly protandrous and the stamens at full anthesis are pressed against the stigma, preventing access to it. Later, the stamens move forward and are tucked away against the side of the corolla while the stigmas unfold.

The Pai Ma Shan plateau is really a grea longitudinal valley in the range, fed by torrents from the glaciers on the west, and th rocky limestone cliffs to the east. The mai stream flows south, and is almost certainl the headstream of the Kari River, not flowing to the Mekong at all. The whole platea has been glaciated in the past, and big glacie must have flowed down towards Atuntzu a well as to the south.

We crossed the pass on August 9, an reached Atuntzu the same evening. I noti an old friend, Primula minor, in fruit o the cliffs, and, along the edge of the woo a few plants of the rather gross P. mu carioides. Along the shady bank were masse of P. pulchelloides still in flower. It was a this very spot that I first found it man years ago, and I have met with it nowher else; but it has increased enormously in decade. Primula pulchelloides has suffere rather undeservedly by comparison with P pulchella; it is said to have fewer and smalle flowers. That is not my experience here. I colour it is not so good as the best forms o P. pulchella, which latter is a most variab plant; but P. pulchelloides, at its best, carri as many flowers as its rival.

After remaining two days in Atuntzu, I r turned to Pai Ma Shan, crossing the pass agai on August 13; but, instead of following th valley south, we turned west towards the sno peaks, finally camping at 16,500 feet, righ opposite to the great pyramid called Tsay Its altitude is about 21,000 feet.

In this remote alpine valley, quite a thousand feet above the pass, we found numerou flowers. The weather was bad, the vie poor, but I got out every day, an ascended to nearly 18.000 feet. In some plac the grassy slopes were violet with what I to to be Meconopsis rudis, a finely coloured form M. speciosa (Cambridge blue) was not rar but was nearly over; the fragrance of it wa astonishing. Still recognisable, though jade were Polygonum Forrestii, Primula bell Androsace chamaejasme, species of Cremanth dium with nodding flowers, Corydalis—all th old set. A few Gentians and Saxifrages we ready in flower. Up on the high screes ecies of Parrya, small Saxifrages, Aconitum, uciferae, and other plants flourished.

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* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18. July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17 July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10 and 24, 1923.

On this trip I discovered a new glacier on e Pai Ma Shan ridge, in an unsuspected lley at the extreme north end; but the eather was so bad, I failed to reach it. owever, on the moraine of another glacier, e foot of which I reached, were several teresting plants, including golden Saxifrages d a big, woolly, white Saussurea. In the y-cold water coming from the glacier foot ew a brilliant gamboge-yellow Ranunculus.

Another curious plant new to me, found on e highest alpine pastures, was a Pedicularis aich at first sight looked marvellously like Salvia; and up on the stoniest porphyry dges was that jewel of Mu-li, Myosotis ookeri. It was quite common, in fact, but e plants were all small, and apparently had ever been in flower. Still, it was interesting find it here. At the head of nearly every dley is a glacier lake; but, apart from them, is astonishing the amount of water which zes from the base of every stony ridge. Pai a Shan is by no means dry—it is not so dry the Mu-li ranges, at any rate.

On August 17 we moved across to the other de of the main valley, pitching camp under le limestone towers and barren screes which ce south; the valley between the porphyry, ow range and the limestone ridge being peraps four or five miles wide.

The flora of the two is surprisingly different, r, though many species are common to both e porphyry range and the limestone ridge, ch boasts plants not found on the other. onfined to porphyry are, for instance, Myotis Hookeri, Meconopsis rudis, and M. peciosa; and to the limestone, two beautiful, oolly Labiatae, a Nepeta with violet flowers ncealed under the gracefully arched leaves, nd the Lamium of Mu-li, with shell-pink owers (K W. 4644).

By the stream in the defile was a large ellow Cremanthodium, the only fragrant pecies known to me; and a Primula in fruit, llied, apparently, to P. Wardii. High up on e screes was what I took to be a very dwarf rm of P. dryadifolia, but the flowers were ver. On the whole, the plants met with at 7,000 to 18,000 feet are dwarfed forms of lants common at 15,000 feet; few new species ccur above that altitude. Exceptions are leconopsis speciosa, and a rather dwarf ellow-flowered Meconopsis densely covered with ng, silky, golden-yellow hairs; Saussureas, ertain Saxifrages, and a few others.

The weather continued bad, with frequent eavy showers sweeping over the mountains, uffling the high peaks in cloud. Every morng the mist came sweeping up from the hot ang-tze gorge; and by mid-morning sufficient ad accumulated for a steady drizzle, succeeded ater by violent showers. When, as occasionlly happened, the sun came out, it was disinctly hot, and, had the nights been at all lear, it would then have been equally cold s it was, the temperature at 15,000 to 16,000 et did not fall below 38°.

On August 19 we broke camp and went down he valley, reaching Atuntzu the same evening. here were clouds of lilac Thalictrum, and e lunched in a sea of blue Cynoglossum. In he home valley the straw-yellow corollas of lematis tottered in the hedges, and the bushlad banks were blue with Delphinium yunanense. *F. Kingdon Ward.*

ORCHID NOTES AND GLEANINGS.

LAELIO-CATTLEYA NANCIE GAMBLE.

A brightly coloured cross between L.-C. Iyeana and C. Trianae is sent by Frederick . Hanbury, Esq., F.L.S., Brockhurst, East rinstead (gr. Mr. Matthews). The flower, hich is seven inches across, is an enlargement f L.-C. Hyeana, the tubular form of the lip herited from C. Lawrenceanum, and the rounded xpansion of the front lobe being well defined. he sepals, petals and tube of the lip are light osy-mauve, the front of the lip ruby-purple, the isc pale yellow with darker veining.

ODONTOGLOSSUM OROSUM.

The first flower of a grand new cross between a fine blotched Odontoglossum crispum and Odm. Orosius (Maillardianum × Solon) is sent by R. Gerrish, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell).

O. Orosum might be called a picture flower, so beautifully are the richly coloured blotches displayed on the blush-white ground. All the segments are broad; the clear, claret-red, irregularly-formed blotches are arranged in transverse bands, the tips and margins being blush-white with smaller red markings. The lip has a prominent yellow crest, around which are several claret-red blotches, the largest showing conspicuously in front. The crimped and fringed margin is white. This fine novelty is a worthy descendant of Messrs. Charlesworth's favourite Odontoglossum Maillardianum, so frequently exhibited by them.

ODONTIODA DAFFODIL MONTAGUE MACKENZIE.

Mr. Hanbury also sends flowers of this pretty new cross between Odontoglossum crispum and Odontioda Leeana (Cochlioda Noezliana × Odm. Harryanum).

The flower is of fine shape, having sepals and petals nearly equal in size. The colour closely approaches that of C. Noezliana, being vermilion-red, the sepals having a few transverse white lines and the petals whitish margins. The lip is coloured, like the petals, in front, and the base is spotted with similar colour. The upper side of the column is also red.

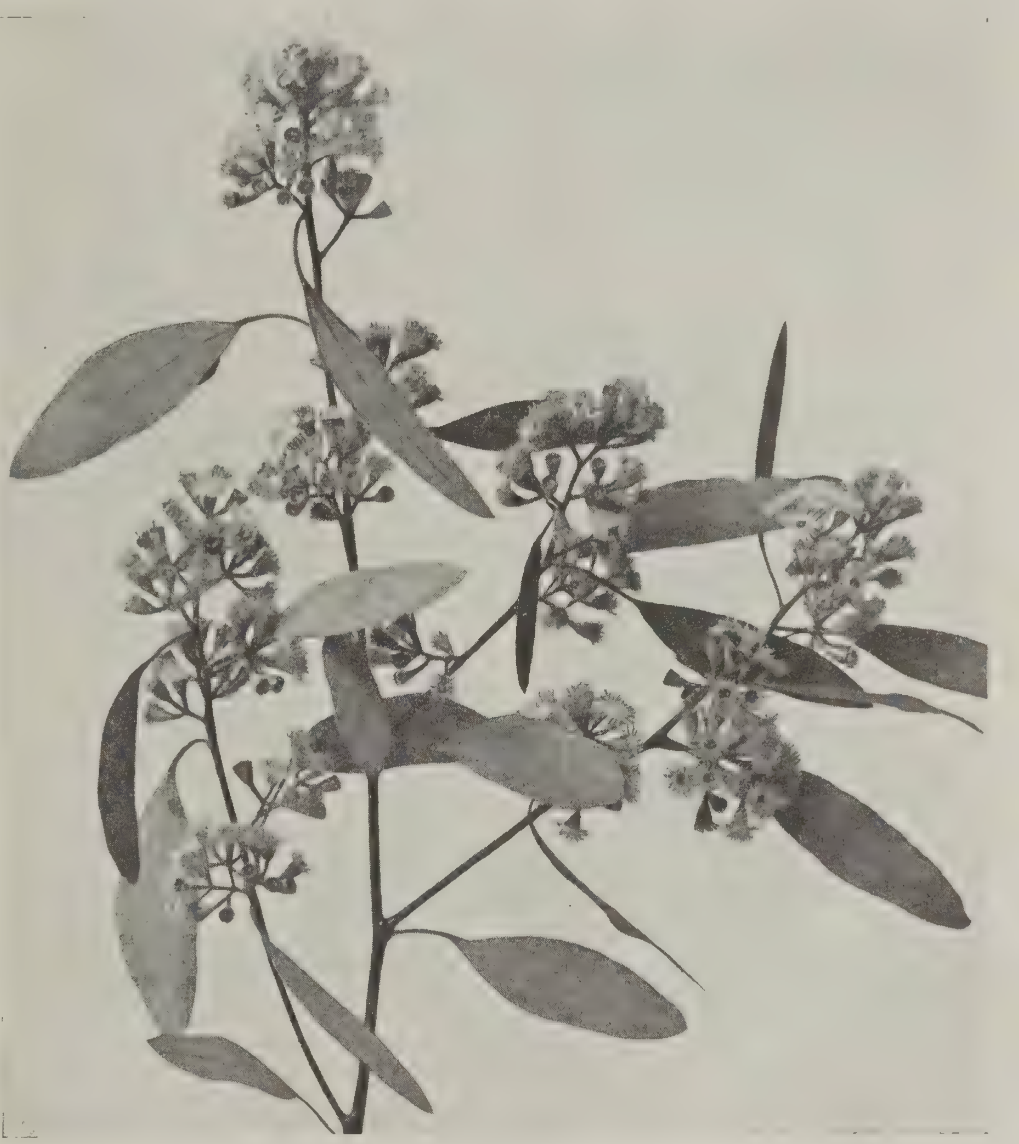

FIG. 85.—EUCALYPTUS HAEMASTOMA, FROM A SPECIMEN SENT TO COVENT GARDEN FLOWER MARKET FROM THE SOUTH OF FRANCE (SEE PAGE 186.)

THREE MADAGASCAR CYMBIDIUMS.

Cymbidium rhodochilum, Rolfe.—In the year 1900 the Belgian traveller, Mons. C. Warpur, introduced, with several other Madagascar Orchids, this showiest of the three known Madagascar Cymbidiums, and for some ten years it was occasionally seen in gardens, but later seems to have dropped out of cultivation. It is one of the most beautiful and distinct species, and in view of the great importance of the genus it would be of general interest to know whether it is still represented in gardens, and what use has been made or attempted with it in hybridisation. But the safeguarding of such beautiful species by fertilising the flowers with the plant's own pollen, and raising a batch of true seedlings should be the first object of every Orchidist who is fortunate enough to possess a good specimen. If that had been done in this and similar cases scores of fine plants now lost to gardens would still be well represented. The attempt to obtain selfed seeds does not prevent the use of the plant for hybridising if pollen from another flower is available for the purpose.

Cymbidium rhodochilum produces scapes from 1 foot to 2 feet in height, which bear flowers over 2 inches in diameter. The sepals and petals are pale green, the petals spotted with black. The front lobe of the lip is crimson, with a broad yellow band on the disc. The plant appears to be a true epiphyte, for the collector states that he always found it growing on masses of Platycerium clustered on trees at an elevation of about 1,800 feet to 2,000 feet, in humid localities. This peculiarity no doubt affords an explanation why it fails when grown with other Cymbidiums. It is probable that if the plants were fastened to bare rafts and suspended in a moist, warm, intermediate house their cultivation would give little trouble. Large numbers of Orchids, such as Broughtonia sanguinea, the section of Oncidium including O. tetrapetalum and O. triquetrum, all the Ionopsis, Comparettias, and similar Orchids which are found on small branches and twigs of bushes in their native habitat, may be said to "grow on nothing," and rapidly fail under pot cultivation in the usual Orchid compost.

Cymbidium Humblotii.—The discovery of this stately Cymbidium must be accorded to Mr. Charles Curtis when collecting in Madagascar for Messrs. J. Veitch and Sons in 1878, but living plants were not introduced until some years later. The first specimen to be shown was that for which Mr. C. Ingram, of Godalming, obtained an Award of Merit in June, 1892. In April, 1913, Messrs. Charlesworth obtained a First-Class Certificate for the species, the specimen shown being several feet in height, and bearing tall spikes of pale green flowers having black-spotted labellums and resembling in some degree those of Coelogyne pandurata.

Cymbidium flabellatum.—Although the first of the Madagascar species to be recorded, this Cymbidium is known only through the dried specimens in Humblot's collection, the flowers being described as green, purple and yellow. It is a desirable species, and will be welcome when it can be imported.

These three Madagascar Cymbidiums were, later, separated by Mr. Rolfe, and included in a new genus Cymbidiella, but there seems to be little need for the distinction. *J. O'B.*

OLD BOTANICAL AND GARDENING BOOKS.

There is a growing interest in all kinds of old botanical and gardening literature. The well-known house of Bernard Quaritch, Ltd., of 11, Grafton Street, W., has just issued, at the price of one shilling, a catalogue of second-hand rare and valuable books on these subjects, which they offer for sale. The catalogue consists of 145 pages, and contains the titles of quite a large number of some of the rarest and most valuable books of the kind ever brought together. Under the heading of Botany I find Boott's *Illustrations of the Genus Carex*, several sets of the *Botanical Magazine*, Hooker's *Icones Plantarum*, Jacquin's *Hortus Botanicus Vindobonensis*, his *Florae Austriacae*, his *Icones Plantarum Rariorum* and several others; Miss Lawrance's *Collection of Roses*, Redoute's *Les Liliacées*, and his *Les Roses*, Sibthorp's *Flora Graeca*, Waldstein and Kitaibel's *Descriptiones et Icones Plantarum Rariorum Hungariae*, and many more at prices far beyond the purse of any but the most well-to-do collectors.

Fruit culture, Herbals and other departments of literature are all well represented. Gardens and gardening occupy about 30 pages, and copies are offered of such works as De Bry's *Florilegium Novum*; Boyceau, *Traité du Jardinage*; Franeau, *Jardin d'Hyver*; Robert Furber's *Plates of Flowers*, 1730; Hill's *Profitable Art of Gardening*; Louis *Le Thresor des Parterres de l'Univers*; Mollet, *Le Jardin de Plaisir*; *The Orchard and the Garden*, 1596 (probably unique); Gerard's, Parkinson's and Crispin de Pass' works in several editions, some of the rarer and most valuable works of Repton and Sweet. A copy of Ventenat's lovely work, *Jardin de la Malmaison*, and the *Wilton Garden*, first issue, must conclude this all too brief notice of the contents of a most attractive catalogue.

Although it is a second-hand bookseller's catalogue, yet, as a work of reference for the librarian and collector and student of horticultural and botanical literature, it is of great value, and well worth the price charged for it. *C. H. P.*

DEGENERATION IN POTATO FLOWERS AND CAUSES OF STERILITY.*

(*Concluded from p.* 176.)

The anthers of very slightly older buds are filled with disorganised contents and foreign bodies. The elucidation of the problem of degeneration is now complicated by the presence of a secondary infection.

In addition to the amoebae which have much increased in size there are, lining the anther wall, strings of small bodies which I diagnose as chytridiaceous zoospores, each spore having one flagellum.

Also in the anther cavity are larger, darkly staining bodies. These have the appearance of chytridiaceous sporangia. On the examination of fresh material these latter are found to be motile, having a rather slow movement. They stain reddish purple with iodine. The zoospores mentioned above are very rapid in their movements, swimming to and fro with the flagellum straight in front. On the appearance of the chytrid, the amoebae immediately show signs of degeneration.

Up to the present I have not been able to work out the life histories of these parasites.

Returning to the amoeba, I have been able to identify several stages of nuclear division. The resting nucleus consists of a large karyosome surrounded by a clear zone, across which are several rays slightly thickened in the centre. Binucleate amoebae are common, and often examples are found possessing three or even more nuclei.

Not only are the anthers of the flower attacked by the amoebae, but frequently also the ovary walls and ovules. The division stages of the amoebae from the ovary are more easily determined than those from the anther cavity, since the complication arising from degenerate tissue is less apparent in the former than in the latter. Typical amoeba cysts are common. In fresh material I have frequently observed the encystation of the organisms. These cysts often contain two and may contain up to four nuclei.

Great difficulty is experienced in diagnosing the morphology of numerous large dark double bodies which I find in the anthers of all Potatos showing the Up-to-Date type of degeneration. These curious bodies are very distinct in character, although they differ in size, shape, and granular density. Some appear to consist of a network of cells, each cell of which is more or less pentagonal, and some of which were observed to have five round dot-like particles of chromatin. Larger bodies contained dark lateral masses connected with a semi-transparent tube. Still larger ones showed the dark masses completely separate. Some of these bodies are surrounded by a cell wall. Other stages are devoid of a cell wall, the exterior of the body consisting of a thick coat of irregular surface. On treating these bodies from fresh anthers with 5 per cent sugar solution, they become lighter in colour, swell, eventually disintegrate, and set free small, round globules surrounded by oil.

My diagnosis at present is in favour of the fact that they represent the original pollen mother cell attacked by parasites, and that, therefore, the varying appearance of these bodies is due to the fact that there are present all the stages of invasion from the infection of the pollen mother cell nucleus to its entire replacement by the development of the parasites. The anthers show no apparent outward sign of the wholesale disorganisation of the plant tissue caused by the invasion of the amoebae. They are larger and finer in the flowers than many comparatively fertile varieties, the enlargement being due to the hypertrophied condition of the tissue.

It will be understood from my previous remarks that the male sterility resulting from varieties having the Up-to-Date type of degeneration is complete. There are, however, a large number of varieties in which there is partial male sterility. With the most satisfactory pollen parents, the percentage of Potat hybridising successes is small.

This lack of success may be due to—

(1) The presence in the anther of a lar percentage of shrivelled grains.

(2) The presence of hypertrophied grains

(3) Weak compatibility of the gametes whi unite in fertilisation.

The third problem I shall touch upon lat and only very slightly, since this paper chiefly morphological in character.

The fact of the widespread presence of hyp trophied pollen grains in the anthers, not on of Potato varieties, but also of a large nu ber of monocotyledons and dicotyledons, seen to me a matter of great importance in t consideration of a partial male sterility.

I have myself examined over two hundr Angiospermic plants, chiefly of hybrid a horticultural interest, and in the anthers of per cent. of these I have found hypertrophi grains. Considering their widespread occu rence, very few observations appear to ha been made on them.

Bj. Palm, in a paper on "Pollen Develo ment in Tropical Monocotyledons," makes t following statement:—"Only regarding Palisc it deserves to be mentioned that pollen grai of a very big size were often found. In s these pollen cells exceeded the ripe norm tetrads. Further, they constantly showed scanty highly vacuolated plasma contents wi a hypertrophied nucleus within. The orig of the giant grains could not be ascertain in the material at hand."

In my observations, many of these hyp trophied grains contain numerous round, oi looking bodies which stain reddish purple wi iodine. When placed on the stigma of t flower some of the grains have been observ to send out germ tubes which are distinguish from the pollen tubes of the normal grain their inflated and irregular shape.

It would appear that these abnormal poll tubes result from the high osmotic pressure the inside of the grain. On the stigmas Potato flowers I have often observed hyp trophied grains enveloped in globular proj tions emerged from four or five pores.

Wingfield Dudgeon (*Botanical Gazette*, 191 describing hypertrophied pollen grains Rumex crispus, writes:—"Pollen grains t have proceeded to full wall development a generative cell formation begin to enlarge u about twice the normal volume. In all s there is considerable accumulation of starc

My own diagnosis with respect to the ca of hypertrophy in Potato pollen grains that it is due probably to the invasion of amoebae or to the chytrid mentioned above.

The amoebae which are so abundant in Up-to-Date anthers are also found in la numbers in the anthers of Myatt's Ashl Potato, and I have observed two or even th of these organisms in the pollen grains.

Further investigation on the cause or cau of hypertrophied pollen grains is being made.

In this short paper I have been able to d only with the main and obvious causes sterility in Potato flowers. It is well know however, that once a successful attack been made on a plant by a foreign organi and the plant has been unable to withst the invasion of the parasite, then the fi is open for the entry of other parasites.

My observations with respect to Potato va ties lead me to the opinion that all the Pot plants I have examined are attacked by amoebae, but that many varieties are able partially or entirely withstand the attack, hence pollen development goes forward.

Plants which withstand the amoeba att may partially succumb to chytridiace infection.

It seems advisable at this point to add parenthetical statement, viz., that in a co plex group of plants, such as we have in commercial varieties of Potatos, we proba have to deal with *several* causes leading conditions of sterility.

For example, the history of Potato seedli leads us to suspect that the physiologi phenomenon of incompatibility—self and cr is at the bottom of much sterility, and possi also of much degeneration.

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* A paper, illustrated by lantern slides, read before the Agricultural Section of the British Association for the Advancement of Science, Hull, 1922, by M. S. G. Breeze, B.Sc.

INDOOR PLANTS.

JAVANICO-JASMINIFLORUM RHODODENDRONS

At the fortnightly meeting of the Royal Horti- ultural Society, on February 13, a splendid hododendron of the javanico-jasminiflorum ection, exhibited by Sir George Holford (gr. Ir. Clarke), attracted universal attention. It as one of the hybrids raised some years ago y Messrs. James Veitch and Sons, Ltd., of helsea, and named Ne Plus Ultra. The owers are of a rich orange-scarlet colour. he fine plant carried eight or nine large trusses bloom fully open, and there were others to llow. As these beautiful greenhouse Rhodo- endrons are of great merit, a few remarks on eir treatment may be useful, for many imagine ey are difficult plants to cultivate, which is uite erroneous.

These hybrid Rhododendrons require an in- ermediate temperature ranging from 50° to 60° winter, with a warm, humid atmosphere at all asons, and they should be shaded from the irect rays of the sun. They will not succeed a dry atmosphere. Draughts also must be revented from reaching the plants. They do ell in any ordinary warm conservatory, planted it, growing amongst other warm greenhouse ants. They should not be potted or planted ry deeply in the soil, as they are surface oting plants; when grown in pots, they should ot be over-potted. The most suitable soil is mixture of good fibrous peat, a small quantity light turfy loam, and silver sand. The pots ould be well drained.

The flowers of these Rhododendrons have ch, soft subdued colours, unsurpassed by any her flower, ranging from pure white to orange- arlet, crimson-scarlet, pink, primrose-yellow, lmon-rose, and many other shades. There are ry few plants that can compare with those autiful hybrids for the decoration of the arm greenhouse or conservatory, especially ring the autumn and winter, and a collection fords a succession of blooms of varied and illiant colours during the whole year. The ants, when well grown, are of a bushy habit, ith bright green foliage, that provides a fine il to the richly coloured trusses of bloom. If lowed to grow in a dry atmosphere, the plants se their foliage; when in that condition, the oots should be bent down, and tied to the ntral stem during the winter or early spring; the season advances, the plants will, if aced in a warm moist atmosphere, throw out esh growths from the dormant buds on the anches, and become bushy again. The plants ould be syringed lightly two or three times ily when the condition of the weather permits. me of the healthiest specimens I have seen ere growing in an intermediate house amongst rns, Palms, Dracaenas, and other miscellaneous liage and flowering plants.

The plants are best propagated in the winter d spring, but cuttings may be inserted at any her time if the wood is well ripened. The ttings should be made four inches to five ches long, of ripened wood of the previous ring and summer growth. Cut the shoot oothly and level just under a bud, then insert e cutting singly in a small thumb pot filled ith sandy peat. Cover the soil with clean nd at the top, and give it a copious watering. lace the cuttings in a hand light or frame, rnished with slight bottom heat of about 65°, d do not allow the soil to get dry. The ttings will form roots freely, and when well oted, may be transferred to larger pots as quired. The following are all free growing rieties, and may be highly recommended. e Plus Ultra, previously described, the finest its colour; King Edward VII., bright yellow wers, borne in large bold trusses; Hercules, ight fawn-yellow, toned with rose-pink, an tra large flowered variety; Aphrodite, blush nk suffused with white; Diadem, bright orange- arlet, tinted carmine; luteo-roseum, satiny se, the centre toned light yellow; Princess lexandra, white, with a faint tinge of blush; rincess Royal, light rose-pink; Souvenir de H. Mangles, orange-yellow suffused with rose-pink, a fine variety; Triumphans, crimson-scarlet; President, clear buff-yellow tinted rose, and Apollo, bright orange. The multicolour hybrids include Ruby, dark coral-red toned with crimson; Mrs. Heal, pure white, a very free flowering variety; Neptune, brilliant scarlet, and Latona, pure creamy yellow.

The best of the balsaminaeflorum hybrids (or double varieties) are album, pure white; aureum, yellow; roseum, rose; carneum, flesh-coloured tinted with rose; and Rajah, bright fawn-yellow tinted with rose towards the margin. *John Heal, V.M.H.*

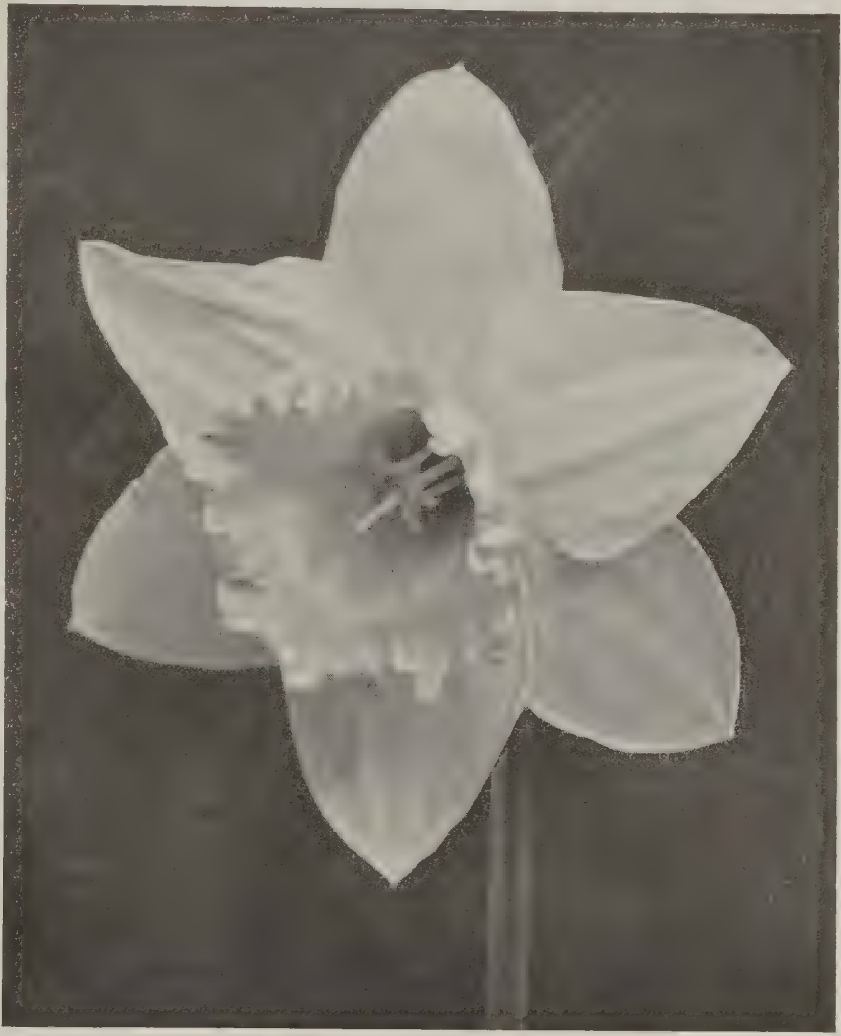

FIG. 86.—NARCISSUS PRINCE UMBRIA, R.H.S AWARD OF MERIT, MARCH 27 (SEE PAGE 179).

FOREIGN CORRESPONDENCE.

SEMPERVIVUM.

In the years 1874 and 1879 the late Mr. G. Baker gave in the *Gardeners' Chronicle* some interesting notes on the genus Sempervivum, and tried to throw light on a very obscure subject. In 1874 he commenced a classification which he did not maintain in his note of 1879, because it was too artificial. It is not possible to fix the characters of such variable plants by the measurements of their leaves and stems. Everyone who grows those interesting plants knows how polymorphous the genus is, and how easily the plants change their dimensions with the composition of the soil. I saw last year in the most interesting and rich garden of Mr. E. A. Bowles at Waltham Cross some Sempervivа which, thanks to the good soil, were as big as some Echeverias, and three times larger than they are in their natural habitat.

This difficulty Baker recognised, and in his study of 1879 he gave us another classification. Since that time no other botanist has had the courage to deal with such a difficult genus, as the plants cannot be studied alone as dry herbarium specimens, but must be cultivated. Indeed, those botanists who work *en chambre*, dealing only with dried specimens, and neglecting the botanic gardens, are liable to make mistakes.

Some botanists have tried to study the Sempervivа as living specimens, and have cultivated them. The chemist M. Martial Lamotte, in Clermont-Ferrand, seems to have had, half a century ago, a good collection of them on which he based his study of *Sempervivum*, published in 1864. So did the botanist Jordan, in Lyon, who had 6,000 pots of living Sempervivums, each coming from a special source. He published numerous new species, many of which are reduced by the *Index Kewensis*, and by botanists generally, to synonyms. The great botanist of the *Flora Orientalis*, M. Ed. Boissier, had in his botanic garden here a big collection of which he gave me, in 1876, a large set which has been the base of my own collection. Our botanic garden here at Geneva contains a large collection too, and I know, in England, some collectors and amateurs who possess collections of them. The late Mr. Neill Fraser, of Edinburgh, had the finest collection in Great Britain, and now here and there some lovers of plants grow them and collect them in a goodly manner.

The object of my note is to appeal to these amateurs to let me know anything of interest they have observed in regard to their plants. This information is for a book, now almost ready to be printed, and which is exclusively devoted to Sempervivums. There are many garden names which must disappear. For instance, S. californicus, which was distributed by Van Houtte 60 years ago, is simply S. calcareum, and was wrongly labelled by a careless or distracted gardener (See *Gard. Chron.*, May 3, 1914, p. 345).

But there are forms of Sempervivum which cannot be identified, and which bear names that no one can explain and which have never been published. Can any reader give information concerning S. admontensis, S. Bungeanum, S. colchicum, S. commutatum, S. cornutum, S. pennicellatum, S. pseudo-ruthenicum, S. putriflorum, S. Schmidtii, S. Scherzerianum, S. serpyllifolium, S. spathulifolium, S. spicatum (not spiculifolium), S. Studeri, S. Wendereri and S. Winkleri, which I have received from several places without any indication of authority for the names? I would be greatly obliged for some help in this matter. *H. Correvon, Floraire, Geneva.*

VEGETABLE GARDEN.

WINTER PURSLANE.

In reply to Mr. Nicholson's query on page 166, I am quite sure of my species, having known the Winter Purslane too long to mistake it for any other. The plant is certainly not much used in this country, but on the Continent it is used not only as a salad, but also as a substitute for Spinach, and the name Winter Purslane is widespread.

The Dutch catalogues list it as Winterpostelijn, the French catalogues as Pourpier d'hiver, Vilmorin's book on vegetables gives it as Pourpier d'hiver, and the English edition of this book also gives it as Winter Purslane. Further, in each case, the botanical name Claytonia perfoliata is given, so that there can be no question as to the identity of the plant.

Technically the plant is an annual, but this does not mean that its growth is confined to the summer months. On the light soil of this district it certainly does not disappear long before winter: on the contrary, the generations succeed each other in quick succession and give crops of succulent leaves over the greater part of the year. Even at mid-winter I found plants in flower, and at the present time seed-pods can be found well advanced towards maturity. *W. Auton, Pyrford Court, Woking.*

——As regards this useful winter and spring salading (see p. 116), *Les Plantes Potagères* (Vilmorin) gives the English equivalent as "Cuban Winter Purslane," perhaps taken from the Dutch "Winter postelijn." By ringing the changes between this and Witloof, we have the most perfect salads for the early salmon—why do people so frequently serve Cucumber when so much better adjuncts exist? I generally collect self-sown plants in the late summer or autumn and give them the shelter of cloche or frame for the winter; larger and more sappy crisp leaves are thus obtained than when less shelter is given. We sometimes have had it as a "spinaching," but it boils down to very little, though it is quite good. *H. E. Durham.*

THE HARDY YAMS.

In the issue for January 8, 1921 (p. 18), I gave an account of the propagation of these plants. As will be remembered, there is no need to keep cuttings growing all the winter, as a recent writer in these pages seems to do. The bulbils and thin ends of the tubers are stored in dry earth until the spring, when they are sprouted and planted out. Last year they did very badly. I only got about 16½ lb. of the Chappellier of usable size from more than 100 plants, and 6 lb. of the Upeh from half that number; the Japanese were not weighed. In an ordinary year there should have been quite or more than a hundredweight of the first named. Evidently our climate cannot be relied on for this plant to supplant the Potato!

BULBOUS CHERVIL.

This excellent root receives little attention in this country. It struck me that possibly one could improve the size of the roots by giving help during their short growing season, so, when sowing in November, 1921, a range of lights on a low portable frame used and designed for Canteloup Melons was made use of. Notwithstanding the bad summer, in this way we harvested the most even crop that I have yet obtained. Last autumn the same plan was pursued with similar hope, and I suggest it as sound to the devotees of this vegetable, as it should do well to serve with turkey or guinea-fowl in place of Chestnuts. Owing to its lanky and fragile nature in the young seedling stage it is very difficult to thin nicely, but incomplete thinning usually leads to the production of tiny, useless roots; yet the autumn sowing must not be too scanty, and it seems preferable to the spring sowing of stratified seeds. I once tried planting the tiniest "bulblets" to see whether a better start could be thus obtained; but they either bolted or did not grow. No growth occurred from those obtained whilst the plants were still in seed-leaf, so that one perforce has to grow direct from seed. For those who do not know it, note may be made that the roots should be stored in dry earth from harvesting in June or July until the autumn or winter; they will keep till March or April, if not eaten before then. *H. E. Durham.*

APPROXIMATE ORDER OF BLOSSOMING OF PLUMS FOR THE SOUTH OF ENGLAND.

(For explanations, see notes which follow the table.)

Japanese Plums.—Burbank and Abundance commence to flower about nine days before the earliest European varieties. Red Myrobalan or Cherry Plum (F_1) is also very early, soon followed by Yellow Myrobalan.

Earliest Varieties.

1st and 5th days: Grand Duke (S), Mallard (S), Bittern (F_3), Blue Rock, Rivers' Late Prolific.

6th day: Abricotée de Braunau, Damascene Prune or Shropshire Damson (S).

Early Varieties.

7th day: Black Diamond (S), Prince of Wales, Curlow (S), Late Black Orleans (S).

8th day: **Monarch** (F_1), Warwickshire Drooper, Jefferson Gage (S), Early Mirabelle (F_1), Reine, Claude de Bavay (F_1), Heron, Guthrie's Late Gage, Count Althann's Gage (S), Mitchelson's, Rivers' Late Orange (S), Coe's Golden Drop (S), Winesour.

9th day: Denniston's Superb (F_1), Early Transparent (F_1), President (F_3), Old Greengage (S).

Mid-Season Varieties.

10th day: **Rivers' Early Prolific** (F_3), Decaisne (S), Rivers' Late Orange, Bryanstone Gage (S), Burbank's Giant Prune (F_2), Supreme, Admiral, Swan, Rivers' Early Damson, Wyedale (S).

11th day: **Victoria** (F_1), Purple Gage or Reine Claude Violette (F_3), Early Orleans (F_3), **Farleigh or Crittenden's Damson** (F_3), Liegel's Apricot, Sultan (S), Angelina Burdett, July Greengage (S), Golden Transparent Gage (F_1), Bradley's King of Damsons (F_1).

12th day: **Pershore Yellow Egg** (F_1), Martin's Seedling or **Pershore Purple Egg** (F_1), Kirke's Blue (S), Ickworth Imperatrice, Belgian Purple (F_3), Yellow Magnum Bonum (F_1), Cambridge Gage, Denbigh or Cox's Emperor (F_2), Rivers' Early Transparent (F_1), Old Transparent Gage (F).

Late Varieties.

13th day: **Czar** (F_1), Rivers' Late Transparent Gage (S), Washington Gage (S), Prince Engelbert (F_3), Coe's Late Red, Cullins Golden Gage (F_1), July Greengage (S), Peach, White Bullace (F_1), Old Orleans (S), Goliath.

Latest Varieties.

15th day: **Pond's Seedling** (S), Smith's Purple Prolific, Red Magnum Bonum, Autumn Compôte (?), Blocker's Scarlet, Stint (F_1), Gisborne's Early (F_1), Kentish Bush ? (F_1).

17th day: Belle de Louvain (F_3).

Notes and Explanations of the Above Table

1. Varieties recommended by the Ministry o Agriculture for market planting are in larg type.

2. The approximate average order of blossoming is based on the following records:—

Hertfordshire.—Sawbridgeworth; of 40 varieties in 1912, recorded by H. Somers Rivers; th difference of date between earliest and lates variety to flower was 15 days.

Worcestershire.—Droitwich; County Counci Experimental Garden, 36 varieties recorded fo 21 years (1900-1920) by James Udale; shortes period eight days (1917), longest 39 days (1913) average for 21 years 18 2/3 days; earliest t commence being March 4 (1903); latest April 3 (1917), the crop was the heaviest in this year.

Gloucestershire.—Long Ashton; Fruit an Cider Institute, 18 varieties (1908-1914); averag difference 18 1/7 days.

Surrey.—Wisley, Royal Horticultural Society Gardens, 16 varieties (1908-1920).

Essex.—51 varieties in 1921.

Herefordshire.—12 varieties in 1894 by Jo Watkins.

Kent.—Wye; 18 varieties 1908-1910, by C. Hooper.

Sussex.—Hailsham; by W. E. Bear.

Leicestershire.—Desford, by F. Lonsdell, a at Evesham; ten varieties for eleven years, H. B. Pollard.

3. Self-fertility or sterility is indicated "S," for self-sterile, F_1 strongly self fruitf F_2 somewhat self fruitful, F_3 occasiona slightly self fruitful, based on reports of Jo Innes Research Station at Wimbledon, t R.H.S. at Wisley, and C. H. Hooper, W *Cecil H. Hooper, Agricultural College, W Kent. March* 16, 1923.

FRUIT REGISTER.

HARDY GRAPES.

Several years ago, I was greatly interes in viewing a fine crop of Grapes growing on old mill house in Suffolk, the aspect being Sou West. New rods were trained in every seas and by this system large bunches and fine ber were obtained.

The variety was Black Cluster, one of the b sorts for growing out of doors. On a low in a garden near Ross grows a vine, beautiful downy serrated foliage, the vari being similar to the old Sweetwater, but it not that variety. The foliage is so fi serrated, and tooth-like, it would make splen material for table decoration.

Vines succeed in a well-drained soil that neither too rich nor too compact in texture. moderate amount of phosphate and potash sh be present in the soil. Lime rubble, bone m crushed bones and fish manures are suita material to use as fertilisers for Grape vines

Vines out-of-doors should be planted in South or South-West aspect, and good drai of the soil is essential.

Planting may be done about the first week April, just as growth commences. The foll ing sorts will be found useful for growing walls or wooden fences: Black Cluster, bunches of this variety are small but compa the berries oval or nearly so. The skin blue-black, with a beautiful bloom. This Grape is extensively grown on the Contin Miller's Burgundy is a large, roundish bl Grape, the skin of the berry being covered a dense bloom. It is one of the best varieties ripen in the open, and is a Grape of merit, be of a rich Sweetwater flavour.

Sweetwater is one of the oldest outdoor va ties, and in some seasons the berries finish They are pale green, thin skinned, and wit slight bloom. This sort is often met with cottage walls, and the Grapes are often m into wine.

August Frontignan is useful for growing low walls, being dwarf and bush-like in ha The berries are of medium size, oval in sh and with the skin coloured deep pu *Pomona.*

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for e opinions expressed by correspondents.*]

"The Orchard and Garden."—I was much inerested in your leading article of February 24 n *The Orchard and Garden*, 1596. I have an d book entitled the *Practical Kitchen Gardener r a New and Entire System of Directions for is Employment in the Melonry, Kitchen Garen and Pottagery in Several Seasons of the ear*, by Stephen Switzer (1727), author of *The ractical Fruit Gardener*, commencing with a ng letter to the Rt. Hon. Lord Bathurst, Baron f Battledeen, the preface referring to several arly writers on gardening. The covers are in dilapidated condition, the letter and preface iscoloured by damp, but the book itself is in airly good condition. It also contains a plan f an octangular garden. In various subjects ich names as Pliny, Varro, Syllano, Cato, olumella, Virgil and others are mentioned. It a very interesting book. *A. B. Stanton*, 5, *he Liberty, Wells, Somerset.*

[*The Practical Kitchen Gardener* is not scarce nd is only one of the many works by Stephen witzer, an account of whom was published this journal, September 18, 1915. The above ork was supplemented by another in 1728, ntitled *A Compendious Method for the Raising the Italian Brocoli, Spanish Cardoon, Celeriac, inoché, and other Foreign Kitchen Vegetables,* c., etc. It passed through at least five edions. In *A Dissertation on the True Cythisus the Ancients* there is appended *A Catalogue the Best Seeds*, all of which make a complete ccount of the vegetables cultivated at the period question. The last-named was published in 731, when he had been established 3 years a eedsman in Westminster Hall, and is supposed have had a nursery on the site of which is the aterloo Railway Station.—EDS.]

Rust on Carnations.—Growers of Carnations ho are troubled with "rust," will do well to ringe the plants on favourable days twice a eek all through the season with salt water. se 5 oz. of agricultural salt dissolved in three llons of water, rain water for preference. revent so far as possible the salt spray coming to contact with open blooms. I have used lt water for years past on all kinds of Carnaons, and at the moment the Malmaisons and rpetual flowering varieties growing in the ouses here are as clean and healthy as possible. here is no need to spray, indeed the Carnaons may be syringed heavily, until they are ipping, as they will not take harm. *Arthur llardice, The Gardens, Burwarton Hall, ridgnorth, Salop.*

Gardens at Olympia.—I was interested in the mments in various issues of your paper on e horticultural exhibits at Olympia. It is aracteristic of the British horticultural aternity to criticise any effort which is made itside their own fold, and that is why the embley Exhibition receives, in horticultural rcles, more criticism than support. We are too uch like farmers, and too little like business en. If it were not for the enterprise and busiess methods of the seed firms, British hortiulture to-day would be at a fairly low ebb. he R.H.S. does most excellent work in its mited sphere, but half the public have never eard of the Society, and only a very small per nt. of the general public have seen the .H.S. shows. To a large extent the future of ritish horticulture lies with the multitude, e small buyers, who cannot get to flower shows ntil the evening, and know little of gardenig beyond what they read in the Daily Press, d that is why shows such as the one in uestion at Olympia are, in spite of their shortomings, invaluable. Perhaps some day the .H.S. or a similar horticultural body will have e pluck to take Olympia and run a flower ow there for a month, and have the doors pen from 10 a.m. to 10 p.m., for I believe it our lack of business methods that results in iserable wages being paid for gardening, and eeps horticulture in the same rut as agriculture. *ontagu C. Allwood.*

The Ghent Jury, 1923.—The list of jurors, published in the *Gard. Chron.* of March 24, is interesting from a retrospective point of view. The last Ghent Quinquennial Show was held in April, 1913, and there were then 45 British and Irish members. This year there appear to be 54. Of this number there are only about 19 who formed part of the jury ten years ago. Death and other causes have diminished the number of our old colleagues. *C. H. P.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, MARCH 15.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, A. T. Cussons, J. Cypher, J. Evans, W. Giles, A. Hanmer, J. Howes, W. M. Jackson, A. Keeling, D. Losh Thorpe, D. McLeod, F. K. Sander, E. W. Thompson, J. Whitham, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Cypripedium Moonstar (*Boltonii* × *niveum*) a distinct Cypripedium of the white type; *Cypripedium Windsor* (*Eurybiades* × *Chardwar*), a flower of fine shape, the broad, dorsal sepals being heavily blotched; *Dendrobium Cybele majalis*; *Lycaste Skinneri brilliantissima.* All from S. GRATRIX, Esq.

Odontoglossum crispum Lady Rachel; *Cattleya Enid alba Our Queen*, a flower with pure white sepals and petals, and broad lip that is beautifully coloured. From Mrs. GRATRIX.

Lycaste Skinneri hellemensis, one of the finest and most richly coloured varieties of Lycaste. From Mrs. BRUCE and Miss WRIGLEY.

Cymbidium Alexanderi Cussons' var., a very fine variety of a reddish-coloured type. From A. T. CUSSONS, Esq.

Odontoglossum amabile Duke of Portland. From P. SMITH, Esq.

Brasso-Cattleya Somme var. Enchantress (*C. Schroderae alba* × *B.-C. Maroniae*). From Messrs. COWAN AND CO.

AWARDS OF MERIT.

Odontoglossum Mandarin (*parentage unknown*); *Cattleya Stuartii var. albina* (*Mendelii Queen Mary* × *Mossiae Queen Mary*); *Lycaste Skinneri Pallas*; *Dendrobium electrum magnificum.* From S. GRATRIX, Esq.

Lycaste Skinneri His Majesty; *Coelogyne Sanderae.* From Mrs. BRUCE and Miss WRIGLEY.

Cymbidium insigne Cussons' var., *C. Schlegelii var. Kervalli*, and *C. Maydew* (*Holfordianum* × *insigne*). From A. T. CUSSONS, Esq.

Maxillaria Fletcheriana. From B. J. BECKTON, Esq.

Cymbidium Alexanderi var. White Wings. From the Rev. J. CROMBLEHOLME.

Odontoglossum crispum Daisy. From A. HANMER, Esq.

GROUPS.

S. GRATRIX, Esq., West Point (gr. Mr. J. Howes), staged a group, for which a Gold Medal was awarded.

Mrs. BRUCE and Miss WRIGLEY, Bury (gr. Mr. A. Burns), were awarded a Silver-Gilt Medal for a group of Lycastes in great variety.

Capt. W. HORRIDGE, Bury (gr. Mr. A. Coningsby), staged a collection of cut Orchid flowers, for which a Silver-Gilt Medal was awarded.

A HANMER, Esq., Buxton (gr. Mr. G. Giles), was awarded a Large Silver Medal for a group.

F. HARDY, Esq., Ashton-on-Mersey (gr. Mr. C. Branch), was also awarded a Large Silver Medal for a group of Dendrobiums in great variety.

The Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. E. Marshall), staged a group, to which a Silver Medal was awarded.

Messrs. COWAN AND CO., Southgate, were awarded a Silver-Gilt Medal for a group in variety.

Messrs. CYPHER AND SONS, Cheltenham, showed a group of Orchids, for which a Silver Medal was awarded.

NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

6,715.—Jelette, H. H.—Combined fruit picking and stringing or stalk-removing device. March 8.

7,003.—Lawrenson, T. A.—Device for supporting and training Rose trees, etc. March 10.

6,689.—Morrison, A. M.—Appliances for transplanting seedlings of forest trees, etc. March 8.

5,828.—Barritt, N. W.—Treatment of soil and compositions thereof. February 28.

5,970.—Propert, A. H.—Seed-sowers. March 1.

5,287.—Brogdex Co.—Treatment of fruit, etc. February 23.

4,911.—Burdick, C. L.—Apparatus for spraying liquids. February 20.

SPECIFICATIONS PUBLISHED LAST MONTH.

193,165.—Keeble, A. W.—Motor lawn-mowers.

193,244.—Gaunt, C. F.—Apparatus for seed-sowing.

193,294.—Southall, J.—Field and garden rollers.

192,778.—Pease, E. L.—Production of material suitable for use as a fertiliser.

192,788.—Webster, T. H.—Metal label for naming or numbering fruit and other trees, plants, graves, and other outdoor identification purposes.

192,812.—Purchas, F. B.—Fruit grading machines.

193,219.—Eddy, E. D.—Apparatus for separating seeds from grain.

ABSTRACT PUBLISHED THIS MONTH.

Destroying Weeds. Patent No. 191,646.—Mr. C. E. West, of 11, Norfolk Road, Higham Hill, Walthamstow, London, has been granted a patent for a new weed extractor, adapted to be attached to a walking-stick. It comprises a tubular cutter for cutting out cores of earth and an inclined abutment for ejecting the cores laterally through a cut-away part of the tube. The inclined abutment consists of a spring tongue cut out of the tube. The tool may be constructed from a flat piece of metal bent to tubular form. The upper and lower parts of the tube may be slotted longitudinally, the upper part being thus adapted to fit sticks of various sizes.

TRADE NOTES.

A MEETING of the Council of the Chamber of Horticulture was held on March 16, 1923, at 18, Bedford Square, London, W.C.1, Mr. G. W. Leak presiding. The Secretary's report referred, among others, to the following matters:—Owing to the attitude taken up by the Bedford Estate authorities in regard to the lease of 18, Bedford Square, held by the Chamber, and as to the under-letting of offices, an interview took place between the President, Mr. Geo. Monro, and the Estate Steward, when every endeavour was made to come to a satisfactory arrangement. The Steward could not agree to the Chamber's proposals, and contends that the Chamber can only sub-let to kindred societies. The Committee has therefore decided that the wisest course to pursue will be to dispose of the lease with a proviso that sufficient accommodation be sub-let to the Chamber and its kindred societies. Negotiations are taking place accordingly.

A meeting was held on the 30th February to consider the new Bill introduced by Sir William Bird for the marking of certain agricultural produce, steps having already been taken to have horticultural produce included in the Bill. Previous arguments on this subject were carefully reviewed and brought into line for submission at a later meeting to be held at the Ministry of Agriculture. Accordingly, the meeting adjourned, and met later at the Ministry of Agriculture in order to confer with Mr. E. C. Pretyman and other members of Parliament, who desired to discuss the Bill in relation to horticulture. This meeting was of a confidential nature, all points for the inclusion of horticultural produce being fully discussed, and it was arranged that a clause be drafted and embodied in the Bill. Arrangements were also made for the drafting of amendments to be moved on the committee stage of the Bill, such amendments chiefly concerning the sale of horticultural produce when exposed for sale.

This meeting was considered to be entirely satisfactory, and as a result it is anticipated that at last there is every chance of obtaining the desired legislation in this connection.

The Secretary reported that the abovementioned Bill had been duly printed containing a clause in relation to fruit, vegetables, and fruit pulp. The Parliamentary Committee of the Chamber had met just prior to the Council, and drafted an amendment to be moved on the Committee stage of the Bill, as to the marking of horticultural produce when exposed for sale by retailers. The Secretary also stated that steps had been taken to parry certain opposition put forward by importers.

Several interviews have been held at the House of Commons in connection with the formation of a Horticultural Committee, and it has been decided, on the advice of Mr. Rupert Gwynne, Mr. Pretyman and others, that the Horticultural Committee shall act as a subcommittee to the main Agricultural Committee. A selected list of 15 members all representing horticultural districts has been supplied to the Agricultural Committee, and these members of Parliament will be duly elected to form the Horticultural Sub-Committee. By this means all horticultural subjects will receive due consideration from interested horticultural members, and their recommendations will be brought before the whole of the Agricultural Committee, thereby gaining increased support. The Secretary of the Agricultural Committee stated that he will rely on the Chamber of Horticulture to keep the Horticultural Sub-Committee supplied with subjects for discussion.

A meeting was held on the 21st February, under the auspices of the Federation of British Industries, of all those Associations entering objections to the "Terms and Conditions of Carriage" as proposed by the Railway Companies. In previous meetings with the railways' representatives many of the proposals to which traders could not agree had been favourably revised, and the points on which agreement could not be arrived at will be taken to the Railway Rates Tribunal.

The Chamber of Horticulture, on behalf of growers in the Spalding, Wisbech and Biggleswade districts, is endeavouring to obtain special and reduced rates on a sliding scale for this traffic, for which negotiations are taking place with the Railway Clearing House authorities, who have replied stating that special rates with a minimum of 10 cwts. are being arranged to northern towns, but the companies state they cannot at present make further concessions in the amounts charged. It is considered that these special rates are still too high, and that considerable reduction can fairly be made for large quantities.

It was submitted that in the event of the companies not conceding lower rates for the before-mentioned traffic, the case for the Spalding and Wisbech areas was strong enough to plead before the Railway Rates Tribunal.

A meeting of the Ghent Exhibition Committee was held at the R.H.S. Hall on 30th January, when preliminary arrangements were decided. The question of finance was considered, it being stated that the sum of £250 would be required for transport, paid assistance and other expenses. The Royal Horticultural Society has promised £50, and possibly an additional £50, and it was suggested that a fund be raised to meet the amount required, and that Mr. Geo. Monro be asked to act as Hon. Treasurer. The whole question of finance is referred to the Council.

In reply to a request made at the previous Council meeting the Rates Advisory Committee stated that they do not see their way to re-open the hearing of the classification of trees, plants and shrubs, but that it would be open for application to be made on or after the "appointed day" for alteration in the classification.

ANSWERS TO CORRESPONDENTS.

CONSTRUCTION OF HARD TENNIS COURTS: *Head Gardener.* There is no necessity for you to provide a concrete foundation for the hard tennis courts you propose to construct. The use of a heavy roller will secure the desired solidity of the clinker bed that will form the foundation of the playing surface of the court. Asphalt tennis courts are not to be recommended. There are three reasons for this; they are difficult to lay perfectly true; after continued play on them, their surface becomes very slippery; lastly, during the summer they prove hot and tiring to the feet of players. Shale hard courts are more popular than any other type, and hundreds of such courts are being laid down all over the country. The following specification is the one adopted in the construction of sixty courts in the Manchester Public Parks: "The ground to be well drained with three inch land drain pipes set out in rows 15 feet apart. The whole site to be covered with a layer of hard clinkers and furnace cinders to a depth of four inches, and thoroughly consolidated with a heavy hand-roller. The consolidated clinkers to be covered with three inches of suitable red shale—2/3 next to cinders to be half inch material, the remainder as topping to have passed through a quarter inch screen. The first layer of shale must be well rolled, and made thoroughly firm before the topping is laid over it, and then the whole again rolled until the surface becomes hard, smooth, and of the requisite gradient." While the surface will, in all probability, retain its porosity, it may happen in time that this property may be lost, and it is therefore well to prepare for this by allowing a fall of 1 in 100 from the centre to the outer edges of the courts. The shale used at Manchester is obtained from a colliery spoil heap, where the furnace cinders have been twice burnt, and all the carbon eliminated, leaving a residue of silicate of alumina. Where courts are made of this material it is essential that a hydrant and hosepipe should be close by in order that the courts may be sprayed during dry weather, to preserve a hard surface and lay the dust.

NAMES OF PLANTS: *E. G. L., Deal.* Chorizema cordatum (syn. Lowii). *A. F. F., Oxford,* and *H. B. S.* Cornus Mas.—*E. P.* A garden variety of Azalea viscosa.—*G. H.* Ornithogalum thyrosoides.—*R. A. McD.* Helxine Solierolii.

PLANT PROPAGATOR: *C. I.* Plant propagators are made in a variety of types, sizes and prices by Messrs. Charles Toope and Son, Stepney Square, Stepney, London, E. The best plan would be to write them, and ask for their illustrated price list of propagators, and make the selection of one that suits you best. They have various sizes of each type of propagator. The success of a propagator depends on the skill of the user of it. Everyone has to gain his own experience by practice and close observation. Seeds of many trees and shrubs, such as Oaks, Chestnuts, Hawthorn and Holly, may be sown in the open ground in the autumn before they get dry. Those of Spruce, Pines and Larch are sown in the open in April; Cupressus, Thuyas and Junipers in cold frames in spring. Seeds of trees and shrubs from warm countries could be sown in the propagator in spring. Cuttings of Cupressus, Thuyas and other Conifers are best inserted in sandy soil in a cold frame in September. Cuttings of hard-wooded subjects in great variety can be rooted in the propagator during July and August, when the wood is getting firm. Thus you cannot blame a propagator if you use it for unsuitable plants or at the wrong time. Seedlings of hardy plants should be removed from the propagator as soon as they have germinated; and cuttings as soon as they are rooted.

Communications Received.—H. C.—J. E. F.—G. C. J.—J. S.—A. B. W.—F. F. B.

MARKETS.

COVENT GARDEN, Tuesday, April 3, 1923.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, bundle	
—Cavaillon ..	2 6- 4 0
—Lauris	3 0- 5 0
Beans—	
—Guernsey, lb.	1 6- 2 0
—Madeirabasket	4 0- 8 0
—Worthing ..	1 3- 2 0
Broad Beans, lb.	1 0- – –
Belgian Chicory per lb.	0 2½ 0 3
Beets, cwt. ..	2 0- 3 0
Cabbage, tally ..	2 6- 3 6
Carrots, cwt. ..	2 0- 3 0
—New, per bunch	1 0- 1 2
Cauliflowers, doz.	1 6- 3 6
Celery, roll ..	1 3- 2 6
Cucumbers, doz.	6 0- 8 0
—flats	16 0–20 0
Endive, doz.—	
—English.. ..	1 0- 1 6
—French	2 0- 3 0
Greens, bag ..	1 0- 2 0
Lettuce, French	2 0- 2 3
Mint, doz. ..	4 0- 8 0
Mushrooms, lb.	1 6- 2 6
Onions	
English	4 0- 4 6
—Dutch, bag ..	3 0- 3 6

	s. d. s.
Onions.	
—Valencia, case	6 0- 7
Parsnips, cwt. ..	2 0- 3
Peas, lb. French	1 0- –
—Guernsey ..	2 6- 3
Potatos,	
—Canary Island case	10 6–16
—Algerian ..	2- 2
—Guernsey, lb.	0 7-0
—Dunbar ..	£5 1
—King Edward..	£3 5-£4 1
—Others ..	£2 5-£3
Rhubarb, forced, doz.	1 6- 1
—natural ..	4 0- 6
Radishes, doz.	
—Long ..	9- 1
—Round ..	1 6- 2
Savoys, tally ..	5 0- 8
Seakale, Forced punnet ...	1 0- 1
—natural, half	4 0- 5
Scotch Kale ..	1 0- 1
Spinach, bushel	2 0- 2
Spring Greens, bag.	— 1
Tomatos	
—Canary Islands	15 0–22
Turnips, cwt. ..	2 0- 3
New, bunch ..	1 0- 1

REMARKS.—General conditions of trade last week we fairly brisk, a good demand being encouraged by t Easter trade. The first shipments of Australas Apples have come to hand in fairly good conditio English Apples are still being marketed, mainly fro cold storage, some varieties being rather out condition, but where well kept they have so moderately well. Consignments of fruit from the Cap consisting of Grapes, Pears and Plums, are still on important scale, and have sold freely. Choice veg tables, such as French Beans, new Potatos, Peas a Asparagus are more plentiful and lower in pri Forced Rhubarb is a slow trade, the naturally gro produce being slightly cheaper. Mushrooms are steady demand, although the warmer weather h resulted in increased supplies. Green vegetables a abundant, and the inquiry is not sufficient to hard values. Root crops are a slow trade. The Potato tra remains unchanged.

Plants in Pots, etc.; Average Wholesale Price

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz. ..	10 0–18 0
—elegans ..	10 0–12 0
Aralia Sieboldii..	10 0–12 0
Araucarias ..	30 0–48 0
Asparagus plumosus ..	12 0–15 0
—Sprengeri ..	12 0–18 0
Aspidistra, green	48 0–72 0
Asplenium, per doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Azaleas, 48's per doz.	30 0–48 0
—60's	18 0–24 0
Cacti, per tray, 12's, 15's ..	5 0- 7 0
Cinerarias 48's per doz. ..	15 0–18 0
Crotons, per doz.	30 0–42 0
Cyclamens, per doz.	12 0–18 0

	s. d. s.
Cyrtomium ..	10 0–15
Erica melanthera	
„ 48's per doz.	24 0–36
„ nivalis 48 „	24 0–30
„ 60 „	10 0–15
„ Thumbs „	6 0- 8
Genistas 48's per doz. ..	15 0–18
Marguerites, per doz.	18 0–24
Nephrolepis, in variety ..	12 0–18
—32's	24 0–36
Palms, Kentia ..	24 0–30
—60's	15 0–18
—Cocos ..	24 0–36
Pteris, in variety	12 0–21
—large 60's ..	5 0- 6
—small	4 0- 4
—72's, per tray of 15's ..	3 6- 4

Cut Flowers.

REMARKS.—There was, as is usual at Easter, a fai brisk market in most subjects on the Saturday, crow of sightseers and small buyers from the hospit lining the market early. Lilium Harrisii was ask for in vain after 5.30 a.m., what few blooms th were realised about 15s. per bunch. Richardias (Aru were more plentiful, and sold from 9s. to 10s. p dozen. White Carnations and good White Swan a Hawk Tulips were all cleared early, although t foliage of some of the Tulips was not very go To-day, Tuesday, is a very quiet market, and there not a great supply of any particular subject. So items, such as Lily-of-the-Valley, are difficult to obta Not many plant growers were represented in t market this morning.

GARDENING APPOINTMENT.

Mr. J. H. Roberts, for the past three years G dener to TREVOR EYTON, Esq., J.P., Plas-yn-Cw St. Asaph, as Gardener to the Rt. Hon. Lo COBHAM, Hagley Hall, Stourbridge, Worcestershi [Thanks for 2/6 for R.G.O.F. Box.—EDS.]

SCHEDULE RECEIVED,

Brighton, Hove and Sussex Horticultur Society.—Chrysanthemum show, to be held November 6 and 7.—Secretary, Mr. H. J. Binga 60, Richmond Street, Queen's Park, Brighton.

THE

Gardeners' Chronicle

o. 1894.—*SATURDAY, APRIL* 14, 1923.

CONTENTS.

lpine garden, the—
Æthionema iberideum 195
Oxalis lobata .. 195
arr memorial cup 194
ritish Empire exhibition, timber and forest products at the 193
ulbs, gif of, o a London park .. 194
affodils at Sutton Court 202
ucalyptus, the genus 194
lowers in season .. 194
ruit, fungous diseases of 193
ruit garden, the market 202
ruit register—
Apple Hanwell Souring 203
ruit, spraying .. 203
Gardeners' Chronicle" seventy-five years ago 195
ardeners' wages .. 203
arden notes from S.W. Scotland .. 198
lasnevin, notes from 199
ourds, ornamental .. 198
ardy flower border—
Anemone 195
door plants—
Canna 201
Tecoma alata .. 201
Oak timber, bog .. 198
Obituary—
Turner, James S... 206
Orchid notes and gleanings—
Cattleya Stuartii alba 201
Laelio-Cattleya Narcissus 201
Painters, early botanic 200
Perfume "cultivating" 194
Plant names, puzzles in 201
Potato, leaf-roll in .. 194
Potato variety trials.. 193
Primula malacoides with rounded flowers 203
Pyrus Scheideckeri .. 203
Roses, wireless lecture on 193
Societies—
Association of Economic Biologists .. 204
Glasgow and West of Scotland Hort. 204
Reading and District Gardeners' .. 204
Royal Horticultural 204
Symplocarpus foetidus 199
Vegetable garden—
The Asparagus Fly.. 203
Veitch Memorial medal 197
Week's work, the .. 196
Wilde, Mons. H. de .. 194
Weather, wintry .. 194

ILLUSTRATIONS.

thionema iberideum 195
anana or Plantain, John White's drawing of the .. 200
ineapple, John White's drawing of the 201
rimula malacoides, a new round-flowered form of .. 203
mplocarpus foetidus in the Cambridge Botanic Garden 199
itch Memorial medal 197
ilde, Mons. Henri de, portrait of 194

verage Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 46.1°.

tual Temperature:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 11, 10 a.m. Bar. 29.8, temp., 55°. Weather—Fine.

Fungous Diseases of Fruit. The Report of the Ministry of Agriculture on the occurrence of fungous and allied diseases on crops in England and Wales, already noticed n these columns (see p. 141), gives an excelent summary of the chief diseases which ffected fruit crops during the years 1920-921. It is indeed to be regretted that the rice at which the Report is published (3s. ost free) will be likely to prevent its reachng many of the smaller cultivators to whom t would—or should—be most instructive. Thus it is by them that the remark (p. 64) hould be read that Apple canker is still bundant in all parts of the country and auses great loss. The fact that the fungus Nectria galligena, which causes the disease, nay gain entrance not only through wounds, ut by bud infection by way of the leaf scars, is mportant, and helps to explain how resistant his disease is to eradication. Another pest cab, due to the fungus Venturia inaequalis, showed notable seasonal change of virulence. Severe in 1920, the attacks of this disease were but slight in the following year. Hitherto mildew on Apples has not been egarded as a very troublesome disease, lthough some varieties are badly handiapped by their susceptibility; but its prevaence appears to be increasing, and hence the work carried out at East Malling showing hat lime sulphur and ammonium-polysulphide help to check mildew, is opportune. The light 1920 Apple crop was largely destroyed by brown rot, Monilia fructigena, and if the loss taught the need of adopting methods of control—including the removal of mummied fruit attached to the trees—it may have been not without use to the fruit grower. The Report confirms the results of general observation that not only does Silver leaf continue to destroy Plums, but that it has become a serious pest of Apples. Early Victoria and Lord Grosvenor appear to be most susceptible, and other varieties which are attacked by the fungus causing Silver leaf (Stereum purpureum) are Warner's King, Lord Derby, Grenadier, Lane's Prince Albert, Golden Spire, Bramley's Seedling, Newton Wonder and Cox's Orange Pippin. How severe may be the effect on Apples is indicated by the citation of Mr. Petterbridge's observations made in a Lincolnshire orchard. Out of six hundred and seventy Early Victoria Apple trees, four hundred and fifty were silvered, and in another orchard one thousand of one thousand four hundred trees were affected, and forty per cent. of Lord Grosvenor trees were dying from the attack. The spread of Silver leaf is indicated by the observation that in 1920, in a certain plantation near Wisbech, forty trees were diseased, and in 1921 one hundred trees. Wounds are, so far as is known, the places of infection, and hence, beside the destruction of diseased trees, attention to the dressing of cut surfaces is imperative. As to the results of the work which is being done with the object of reducing loss of the Plum crop from Silver leaf, the Report is not unhopeful; but for our part we think that the pest is serious enough to require the employment of a whole-time officer of the Department, who should visit and advise the Plum orchards and orchardists of the chief Plum-growing districts. Victoria and Czar are, of course, the chief sufferers, and in some orchards—e.g., in Middlesex, there have been counted as many as 3,000 diseased trees in a sixty-acre orchard. It is therefore a melancholy satisfaction to know that since the Silver Leaf Order was passed in 1919, 150,000 diseased Plum trees have been grubbed up and destroyed in Middlesex alone. Nevertheless, there would appear still to be vast numbers of diseased trees, the only use for which is to supply firewood, and that to be burned on the premises. Nor is it surprising that in some districts growers desire a more stringent Order. It is common knowledge that the original Order was deliberately more mild than the case required, and it was contemplated that as soon as growers generally realised the advantages of a systematic attempt to check the disease, a stronger Order should be introduced. In our opinion, the time has come when this question should be reopened by the Horticultural Advisory Council, and full inquiry made into the desirability of more drastic regulations. A point of practical importance mentioned in the Report should be noted by all Plum growers—*viz.*, that all cutting back and shaping of Plum trees should be done when the trees are young. It is greatly to be hoped that the investigations into this disease, now being conducted by Mr. Brooks, will lead to better methods of preventing or circumventing attack by this disease. In the meantime growers should remember that the fungus of Silver leaf grows on many plants other than Apple and Plum, and that it is capable of passing from one host to another. For example, it flourishes on dead Poplar stumps, and has been shown to spread therefrom to fruit trees. In conclusion, it may be mentioned that the Report contains two weather charts, so that the curious in discovering relation between severity of disease attack and weather conditions may study each disease with the charts in front of them.

Potato Variety Trials. The results of tests of yield of varieties of Potatos immune from Wart disease carried out in 1922 at various Welsh centres under the auspices of the University College of North Wales and the County Councils of Anglesey, Carnarvonshire, Denbighshire and Flintshire, have recently been published and the brochure containing them may be had free of charge on application to the Department of Agriculture, University College, Bangor. Of immune first earlies tested, none is equal to the widely grown but susceptible variety Sharpe's Express, a Potato of excellent cropping power, cooking quality and appearance. For those who must grow immune varieties Resistant Snowdrop, or its close relation, Witch Hill, and Resistant Ashleaf, may be tried. Of second earlies Arran Comrades gave good results, and proved earlier than the others of its class which were tried. It may be lifted in August, and indeed should be lifted in that month, for it is very susceptible to late blight, and if left longer in the ground may deteriorate seriously. Great Scot, the popularity of which is general, gave a good account of itself in the trials—a big cropper and apt to run to large size of tuber, it is somewhat later than Arran Comrade, and, like it, susceptible to late blight. The late Mr. Snell used to say that this variety was in great demand among vendors of fried fish, because, owing to its containing a slightly larger quantity of fat than other varieties, it enables those who prepare this delicacy for public consumption to effect an appreciable saving of oil. Of early, main crop immune varieties, Abundance is an excellent cooker, but owing to its great susceptibility to late blight, is more suited for garden cultivation than for growing for market. Of late varieties, Kerr's Pink and Lochar proved the best of those grown in these trials. It would be of advantage if in future reports the areas of each of the plots in which the tests were made were stated.

Wireless Lecture on Roses.—What was probably the first use of wireless broadcasting for the assistance of horticulture was made at the London Broadcasting Station on April 7, when Mr. Laurence Cook, of Messrs. Stuart Low and Co., delivered an address to the immense number of "listeners-in" who now own wireless receiving sets. Details of cultivation were included by the lecturer, who advised his hearers not to blame their gardeners when they pruned their Roses hard. In the course of his remarks Mr. Cook mentioned that in no other country in the world were gardens so appreciated by rich and poor alike, while horticulture gave a richer and more lasting return for the time and money spent upon it than any other hobby. Mr. Cook considered that Dutch Rose trees are never satisfactory in this country, as they make soft, sappy growth in the moist sandy and peaty soils of Holland, and do not take kindly to transplantation in this country.

Timber and Forest Products at the British Empire Exhibition.—The Committee of the Timber and Forest Products section of the British Empire Exhibition has accepted the offer of Mr. Dallimore to serve as Hon. Organising Secretary for the Committee. The Chairman (Lord Lovat) said he had envisaged the exhibits as falling roughly into two classes (1) silvicultural exhibits, including timber in the round; (2) sawn timber and finished products. Sir Lawrence Weaver, Director of United Kingdom Exhibits, suggested that the timber exhibit should be near the farm land, which he regarded as the best possible site if special pavilions were to be erected for the timber exhibit. Mr. Horton reported that the trade had expressed a wish that a special pavilion should form a feature of the exhibit. Mr. Munro pointed out that no meeting had taken place in Scotland, and that in his view a sub-committee for Scotland should be appointed. Lord Leven and Melville agreed with this view, and informed the Committee that office facilities in Edinburgh could be secured. The Committee resolved that a Scottish Sub-committee be forthwith formed, and that it should meet at the earliest possible date. Its membership should be as follows: Mr. F. R. S. Balfour, Mr. W. Black, the Earl of Leven and Melville, Sir Robert Lorimer, Mr. Donald Munro, Mr. R. Paterson, Sir Hugh Shaw Stewart, and its Secretary should be asked to keep in close touch with Mr. Dallimore. After discussion the Chairman suggested, and the Committee unanimously agreed, that it be decided provisionally, and subject to the consent of the Scottish Sub-committee, that a home-grown timber house should be erected as representing the English exhibit, that a village hall, in which exhibits could be shown, should be erected as representing the Scottish exhibit, and that a cloister joining the two should be provided. It was agreed that the English and Scottish exhibits would occupy a space of at least 100 feet frontage, on a depth of 50 feet each.

Flowers in Season.—Messrs. Storrie and Storrie, Glencarse, Perthshire, have forwarded spikes of a large-flowered strain of Primula obconica, which they distribute under the name of P. obconica gigantea. The blooms are from plants grown in five-inch pots, and Messrs. Storrie and Storrie state that each plant carries a minimum of from fifty to sixty spikes. The colours range from white through various shades of blush and rosy-purple to almost crimson, and the large inflorescences are borne on exceptionally long stems.

Peter Barr Memorial Cup.—This handsome cup commemorates the late Mr. Peter Barr and the great work he did in introducing and raising Daffodils. It was subscribed for by Daffodil lovers, is in the trust of the Royal Horticultural Society, and is awarded annually—to be held for one year—by the R.H.S. Narcissus and Tulip Committee, to someone who has done good work on behalf of Daffodils. The award is made each year at the first April meeting of the Committee. On Tuesday last the cup was awarded unanimously to Mr. Charles H. Curtis, who has almost completed twenty-one years of service as Honorary Secretary to the Committee, and has compiled the several *Lists of Daffodil Names* issued by the Royal Horticultural Society, besides acting as registrar of new varieties. Mr. Curtis is retiring from the secretaryship at the close of this season, but at the wish of the R.H.S. Council he will continue to act as registrar of new Daffodils. Previous holders of the Peter Barr Memorial Cup are: Rev. G. H. Englehart (1912), Mr. Peter R. Barr (1913), Mr. E. M. Crosfield (1914), Mr. P. D. Williams (1915), Mrs. R. O. Backhouse (1916), Mr. Walter T. Ware (1917), Miss E. Willmott, V.M.H. (1918), Rev. J. Jacob (1919), Mr. J. Duncan Pearson (1920), Mr. Alex. M. Wilson (1921), and Mr. W. F. M. Copeland (1922).

Wintry Weather.—After several weeks of exceptionally mild conditions, including several days when the temperature reached summer warmth, the weather changed suddenly on the 8th inst., and wintry conditions prevailed with frost and snow in many parts of England. A keen wind blew from the north-east, and we fear that much damage will be caused to some of the fruit crops, and especially Gooseberries and Plums. It is a matter for congratulation that the air was dry, and in these circumstances the top fruit may escape much damage, but it is feared that considerable injury has been done to bush fruits and others near the ground. In this uncertain climate, and especially in spring, the weather is apt to change suddenly, and the wise gardener takes the precaution of having protective material at hand for use should occasion arise. The need of this has been fully emphasised during the past week.

Sussex County Agricultural Show.—A horticultural section will be included in the annual exhibition of the Sussex County Agricultural Society, to be held at Horsham, on Wednesday and Thursday, July 18 and 19. Particulars and schedule may be obtained from the Hon. Secretary, Mr. W. L. Watton, 33, King's Road, Horsham, Sussex.

M. Henri de Wilde.—We have much pleasure in publishing the portrait of M. Henri de Wilde, the Director of Parks, Open Spaces and Plantations, in the city of Ghent. M. Wilde has a very responsible position which he fills with great satisfaction to all concerned. In connection with the Ghent Quinquennial Exhibition, which opens on April 13, M. de Wilde is an important personage, as he is responsible for the design of the exhibition and the layout of the grounds and general disposition of the exhibits.

M. H. DE WILDE.

Director of the Ghent Parks, Open Spaces and Plantations.

Cultivating Perfume.—Under this title the *Times* publishes a note from a Paris correspondent, describing a process adopted by M. Daniel, Professor of Botany at Rennes, for increasing the perfume of flowers. The method, which was explained before the Academie des Sciences in Paris, is stated to be as follows:—"By taking two plants of the same species and grafting one on the other—notably a Wormwood on a Chrysanthemum—he found not only that the grafted Wormwood developed remarkably, but its flowers gave forth a perfume much more powerful than that of the original plant. Moreover, the Chrysanthemum had given to the Wormwood flower something of its own perfume. M. Daniel collected the seeds of the grafted Wormwood, and the following year obtained from them some very fine plants. They had this notable feature—while the flowers of some of the plants emitted a perfume similar to those of the original graft, others were absolutely without odour." While the grafting of two genera of the same natural order may be possible, we are somewhat sceptical as to the progeny of the grafted plant showing any difference in the character of perfume. That the stock may have an fluence on the scion is well known to gardene but we can call to mind no recorded instan of seedlings from grafted plants exhibiti distinct characters.

The Genus Eucalyptus.—We have receiv Part 7 of Volume VI., being Part LVII. the complete work, of Mr. H. H. Maiden *Critical Revision of the Genus Eucalyptus.* T species described are E. agglomerata, E. Si mondsii, E. sepulcralis, E. torquata, E. Ka ganensis, E. melanoxylon, E. Isingiana, an E. aggregata, and there are four plates givi details of E. agglomerata, E. sepulcralis, Kalganensis, and E. Isingiana. E. agglom rata is known as the Blue-leaved Stringy-bar and is stated to be the most useful of a the stringy barks, the timber being especial valuable for use as weather-boards and fencin This Eucalyptus forms a tree about 60 fe high. E. aggregata is a Black Gum formin a tree from 50 up to 120 feet high. Th juvenile leaves have a distinct character, an for this reason the young plant has been d scribed as a distinct species—E. Rodwayi, b Messrs. Baker and Smith. E. Simmondsii, Kalganensis, E. melanoxylon and E. Isingian are new species. A considerable portion of th text of Part 7 is devoted to "The Leaf," which the leaves of the various Eucalypti a considered.

Gift of Bulbs to Hyde Park.—The Lond *Evening News* has presented the Office of Wor with 106,000 bulbs for planting in Hyde Par The bulbs will include 40,000 Narcissi, and th remainder will include Crocus, Scilla, Chion doxa, and Irises. The Narcissi have been su plied to the *Evening News* by Messrs. Wm Gaze and Sons, Kingston-on-Thames; Messrs A. Luff and Sons, Wimbledon Park; M George G. Whitelegg, the Nurseries, Chisl hurst; Messrs. R. Neal and Sons, Trinity Roa Wandsworth; and Messrs. J. Carter and C Raynes Park. The bulbs will be planted the area bounded by Park Lane.

Leaf-Roll in Potato Foliage.—In a paper re by Mr. P. A. Murphy before the Royal Dubl Society, the mechanism of rolling of Potat foliage as caused by leaf-roll, and incidental by some other diseases and injuries, was dea with. The cause of rolling is the distension the spongy parenchyma, following the accum lation of carbo-hydrate in the leaves. A caps (Calocoris bipunctatus), a jassid (Typhlocyb ulmi), and an aphis (Myzus Persicae), whi develops on the sprouts of unplanted tuber were said to be active agents in carrying le roll. In view of this fact it may be advisab to treat seed tubers with a nicotine insectici before they are planted, to destroy any of thes insects that may be present on them.

Local Horticultural Societies.—The Roya Oxfordshire Horticultural Society, with whi is now amalgamated the Oxfordshire Chry santhemum and Fruit Society, is holding a tw days show on August 29 and 30, instead of t one day show, as arranged when our year almanac was published last January. Th Society is also holding a commemoration sh in the Wadham College Gardens on June 26 and an autumn exhibition in the Town Hall Wednesday and Thursday, November 7 and 8 The Society had a very successful year in 192 finishing with a credit balance of £45, as co pared with a deficit of £80 the previous yea This Society was formed in 1830, and it prosperity is reflected in the size of the tw schedules before us, the one for 1884 and the othe for 1923.—Hereford and West of England Ro Society finished the year 1922 with a balanc in hand of over £80. The show of last yea was a record one, the amount of money take for admission being £54 1s. This year's exhib tion has been provisionally fixed for Wednesday July 18. Sir Geoffrey Cornewall has been re elected president, and the Rev. C. H. Stoke re-appointed Hon. Secretary. Mr. G. W. Russ has been appointed assistant secretary. special sub-committee has been appointed t revise the schedule for this year's show A meeting was held in Kirkcudbright on th inst., to consider the advisability of re- ing th^ horticultural show, which has n dropped for some years. Provost Alister presided over a good attendance. er consideration it was agreed, on the ion of the chairman, that the show should revived, and that the name of the society the Kirkcudbright Horticultural Society. was resolved that no money prizes be given, prizes to take the form of cups or medals. e show is to be confined to the Stewartry of kcudbright.—Owing to the Sussex Agri- tural Show being fixed to take place Horsham on July 18 and 19, the ne time as the Haywards Heath and d-Sussex Horticultural Society's Show, dates of the latter exhibition have n altered to July 25 and 26. The original es, July 18 and 19, of the Haywards Heath w are given in our almanac, and the atten- of readers is drawn to the alteration. In w of the later dates of the exhibition entries l be received up to and including July 18. e schedule of the summer and autumn ex- itions, the latter on October 31st. may be ained from the Secretary, Mr. Geo. Prevett, Rosery, Franklynn Road, Haywards Heath.

oyal Horticultural Society's Lecture on il 24.—The subject of the lecture at the nightly meeting of the Royal Horticultural iety on April 24, at 4 p.m., will be "The ra of New Zealand," by J. A. McPherson, not "Some of the Newer Shrubs," by Mr. J. Bean, as previously announced.

ppointments for the Ensuing Week.— sday, April 17: Winchester Horticultural iety's meeting. Friday, April 20: National e Society's Spring Show, at R.H.S. Hall; tbourne Horticultural Society's meeting; ish Mycological Society's Spring Foray at stol (three days).

Gardeners' Chronicle" Seventy-five Years .—*Yew Trees Poisonous.* We know as ainly, in this part of the country, that Yew nches are as poisonous to horses or cattle ng them as arsenic would be; but they act this way only when cut by an edged tool. farmer in an adjoining parish last year ed three cart horses into a field; they went ediately towards a hedge which had been ded with Yew tree stakes, and fed upon branches. In twenty-four hours the horses, ng and healthy before, were hanging in the hounds' kennel. This is a well-known fact his neighbourhood, in which a subscription raised to enable him to replace them. ty years ago, some clippings of a Yew hedge ing been dropped in a field, much fear was rtained lest the cattle should eat them; but hedge from which they had been cut (a ; one) was open to animals at all times, their eating the twigs themselves off the ge excited no apprehension whatever. I d give numbers of instances, did I recollect s, of animals being poisoned by eating ; but whether the poisonous qualities are arted to it by the edged tool, as has always considered to be the case here, or whether xists in greater quantity in withered twigs in fresh ones, I leave to wiser heads to over.—*Dyn-o-Gwent, Gard. Chron., April* 848.

ublications Received.—*Administration Report he Forest Department of the Madras Presi- cy for the Year Ending March* 31, 1922. The erintendent, Government Press, Madras. e 14 annas.—*Report on Experiments for Year* 1922. Agricultural Education Com- ee, Holland County Council. The Agri- ural Institute, Kirton—*The Herbaceous den.* By Mrs Philip Martineau. Fourth tion. Williams and Norgate, 14, Henrietta et, Covent Garden, W.C.2. Price 12/6 net. *oisonous Plants of All Countries.* By A. nhard-Smith. Baillière, Tindall and Cox, 8, rietta Street, Covent Garden, W.C.2. Price net.—*The Primulas of Europe.* By Dr. n MacWatt, "Country Life," Ltd., 20, istock Street, W.C.2. Price 12/6 net.

HARDY FLOWER BORDER.

ANEMONE.

Both the Greek and the Italian Windflowers are equally decorative as border flowers, and the inflorescences are much in demand as cut blooms during the flowering season. The Poppy, or Garland Windflower, A. coronaria, in both double and single flowered varieties, is extremely effective, and much in evidence as a commercial flower in Covent Garden Market during spring. These plants are quite hardy and of simple cultivation, requiring similar treatment to the Ranunculus, with the exception that they may remain in the borders for three or more years undisturbed, but with an annual mulch, then lifted, cut up and replanted in autumn or spring as desired. The habit of the plants is all that could be desired. The foliage is of Fern-like appearance, and extremely decorative; when the plants are studded with their large double or single blossoms in all shades of colour, from white to deepest crimsons, and soft blues to dark purples, they form quite a unique picture. Being hardy, many are planted during autumn for spring flowering, and also in spring for summer flowering. The tubers being hard and dry, they are easily stored in a cool, dry shed, and may be planted in the open garden as the season approaches.

Anemone hortensis, or A. stellata, the starry Windflower of the Riviera, has single flowers, in the most diversified range of remarkable shades of brilliant colours.

The plant is of compact habit, has graceful foliage and is well adapted for the rockery. This Anemone should be planted in well drained, rather light soil in a somewhat shaded situation.

Anemone fulgens, the scarlet Windflower of the Pyrenees, is perhaps the most dazzling scarlet of all Windflowers, and certainly one of the most showy. It should occupy a position where colour is in request, whether in the borders or on the rockery. The tubers may be planted in autumn for spring flowering, and also in spring for summer flowering.

The variety graeca has much broader petals, and a conspicuous black central boss, which adds considerably to the general effect of the flower. It should be planted in well drained, rich soil in a sunny aspect. *W. Logan.*

THE ALPINE GARDEN.

OXALIS LOBATA.

This Wood-Sorrel is quite hardy but needs to be planted in a dry, stony, sunny place, with plenty of drainage in the soil. In such situations it will produce some of its golden flowers in summer, and a second crop will follow in late autumn, when its bright yellow flowers will be especially appreciated. I have had this plant in bloom on a sunny bit of rockwork well into October, and have stopped in passing, many a time, to enjoy the pretty leaves and bright flowers. It is a native of Chili, and grows only about one inch high. *S. Arnott.*

AETHIONEMA IBERIDEUM.

Several of the smaller Cruciferae are useful garden plants of value, especially for the rock garden, on account of their low stature. The genus Æthionema, which includes about forty species of low growing plants, is distinguished by its four large winged stamens, each with a tooth. They include herbs and sub-shrubs, and some are perennials and others annuals.

The inflorescences are terminal, and in most of the species form terminal racemes, but in the one illustrated in Fig. 87 the flowers are developed in scant clusters at the tips of the leafy shoots.

The majority of the species are well suited for dry, sunny positions in the rock garden, and the best known members of the family are Æ. grandiflorum; Æ. cordifolium, Æ. pulchellum, Æ. rubescens and Æ. speciosum, but there are others of merit, including Æ. amoenum and Æ. iberideum, all of which are worthy of inclusion in collections of alpines.

Æ. iberideum forms a neat, compact plant with erect stems some six inches or so high, bearing glaucous grey foliage and heads of white flowers, which are relatively large for the genus. This plant is a native of the Levantine Alps, and is sometimes known in cultivation as Æ. brachystachyum. All the perennial species of Æthionema may be increased easily by means of cuttings inserted in the summer after the flowers are over. Damp is a great enemy of these plants, for which reason it is necessary to plant them in thoroughly well drained soil.

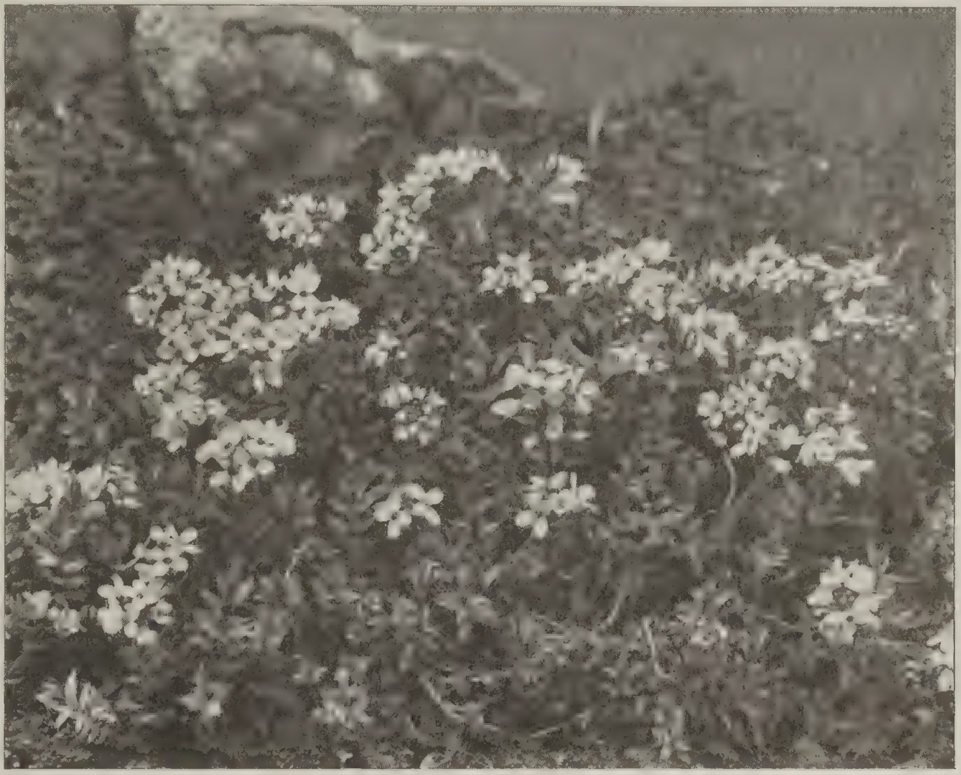

FIG. 87.—AETHIONEMA IBERIDEUM.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cattleya and Laelio-Cattleya.—Plants of these Orchids which produced their flowers during the late autumn and have enjoyed a considerable period of rest are showing signs of renewed activity and developing new roots. Any plants in need of fresh material may receive attention, for the present time is the most favourable of the whole year for repotting them. C. labiata, C. Gaskelliana, C. Percivaliana, C. Trianae, C. Dowiana, and at a later period C. Schröderae, are the principal species which will need attention first. Amongst the hybrids there are many that produce their flowers during the winter, and, like those mentioned above, start on their new cycle of growth at this season. Vigorous plants that only require potting on account of the small size of the pot should be carefully taken out of the receptacle, cleansed thoroughly, have old leafless pseudo-bulbs removed, the decomposed material carefully picked out, and then be placed in the smallest receptacles that will accommodate them. Plants showing signs of deterioration should be carefully taken apart and placed in the smallest pots possible. In most cases the deterioration of the plants will be found to have been caused by the loss of roots either from too little or too much water. the cause and effect in both cases being the same

Potting Cattleyas and Laelio-Cattleyas.—There is great diversity as regards the rooting propensities of the different species and members of these families of Orchids. Some make large and strong roots, whilst others have more wiry and smaller ones; the former are generally strong and robust growers, whilst the latter are amongst those which are often regarded as difficult to manage. These weaker growers should always be given slightly more drainage than those of a more robust nature, and the grower must decide plant by plant, according to its individuality, how much drainage material is needed. Strong, healthy plants, under proper treatment, should not require potting again for at least two years, hence the necessity of the work and the material being of the best. A suitable compost for these plants consists of equal parts Osmunda and A1 fibre, mixed with a small quantity of Spaghnum moss, all thoroughly cleaned, and used in as rough a state as possible. The plants should be potted firmly, as when potted loosely the compost will soon decay, and with it the roots, this in most cases being the cause of the plants deteriorating. Water should be applied to the fresh material with extreme care until the new roots are established in the compost, but frequent dampings between the pots will be of great assistance in giving them a good start. With the increasing temperature, the house in which these plants are grown should have air admitted on all favourable occasions.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Mulching.—All fruit plantations, whether of top or ground fruits, should be well hoed, leaving a fine tilth of soil under the trees or bushes. The drier parts of the garden should then receive a mulching of decayed manure. If this it not obtainable, straw, or material from a spent Mushroom bed will serve. The main object of mulching is to prevent the loss of ground moisture by evaporation.

Peaches and Apricots.—Trees of these fruits in Peach cases should be carefully attended to. See that the soil at the base of the walls is not dry or red spider will soon affect the trees. Insect pests will the more readily attack trees that have become sickly from whatever cause. Some indication of the amount of the Apricot crop will now be seen. As the fruits swell, they should be thinned at intervals. The mulching of trees under glass should be done with well-prepared animal manure.

Espalier Trees.—The extension of these trees by training succeeding tiers should be carefully attended to. Buds suitable for developing into branches for the purpose, and seemingly dormant, may be forced into growth by notching the stem above them to prevent the sap passing through too freely. In training these trees particular care should be taken that the ties are made loose enough for the stems to swell. Suppression of buds may be made where there is a tendency for them to become too numerous.

Coral Spot Disease.—Those who find a prevalence of this fungus on their trees should immediately cut off the affected shoots, and burn them. It will be found principally on Gooseberries and Currants. "Die back" disease may also be present on these fruits; both these diseases have been common on Japanese Maples during the past season. Any arrears of spraying should be completed before the Apple blossom opens. At present there is a promise of a good Apple crop, and every care should be taken that the trees do not suffer through want of nourishment. Hoeing, followed by mulching, on light soils, is a very necessary detail of work

General Remarks.—The hoe should be used continuously, not so much for destroying weeds as for conserving the moisture in the soil. Plums are promising well for fruit, and the artificial pollination of shy setters should be carefully attended to. As soon as the fruits have set and danger from frost is over, the protective material should be removed, to allow free growth of the shoots. The netting may be required in the case of certain Apple and Pear trees to protect the blossoms from damage by birds.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Veronica speciosa.—There are many fine named varieties of this Veronica, which are useful for the decoration of the conservatory during the late autumn and early winter. Cuttings rooted at this time will flower in 48-sized pots during the autumn; if grown on a second year they make fine, large specimens. The plants are best grown in cold frames, or they may be stood out-of-doors during the summer.

Medinilla magnifica.—This handsome stove shrub, which has been in flower for sometime, may be propagated easily at this season by means of the smaller, half-ripened side shoots. Insert the cuttings singly in small pots containing light, sandy soil, and plunge them in a warm propagating case. The young plants should be potted on as they require increased room, and in time they will make large specimens in big pots or tubs. They succeed best in a compost consisting of fibrous peat, leaf-mould and light loam, with enough clean coarse sand to render the whole porous. This Medinilla requires stove temperature at all times, with plenty of atmospheric moisture; and when well established, enjoys ample supplies of water at the roots.

Psoralea affinis (syn. P. pinnata).—This South African Leguminous shrub or small tree is a very handsome subject for the conservatory, where it may be planted out; or good specimens may be grown in pots, as small plants flower freely. It may be propagated at this season by means of twiggy, half-ripened shoots. inserting the cuttings in pots of sandy soil, and plunging them in a case with slight bottom heat. It is by no means an easy plant to propagate, but cuttings taken from pot-grown plants are more likely to succeed than those from strong plants that are planted out: this is also the case with many other plants that are somewhat difficult to propagate.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Es
Carlton Park, Market Harborough, Leicestershire.

Broad Beans.—Plants of Broad Beans raise in boxes under glass may be transferred the open ground, choosing a sunny and she tered position for planting them. Set them double rows nine inches apart, and allow foot between each plant in the rows. Whe they are planted, fork the ground up light around them. Make another sowing in boxe and raise the seedlings in a cold frame; towar the end of the present month, make a go sowing outdoors in a well-manured piece ground. When the plants have nearly com pleted their growth, pinch out the tops an stake them. If black fly appears, syringe th plants late in the afternoon with Quass extract well diluted with soft water. If slu are troublesome, place a ring of sifted co ashes around each plant.

Carrots.—The main crop of Carrots may no be sown on deeply dug land which has n been recently manured. Carrots delight in sandy, porous soil, and soil of this nature shou be selected so far as is possible. If the s is of a heavy texture, make holes with a cro bar and fill them with fine soil. Sow a fe seeds at each station, as in the case of Parsni At the same time, make sowings of the Fren Horn and stump-rooted varieties to obta roots for use during the summer and autum

French Beans.—Sow seeds of French Beans five-inch pots, and raise the seedlings warmth for planting out later in cold fram The plants will give a profitable return mu in advance of the outdoor ones. Towards t end of the present month sowings may made on the ridges between Celery trench placing the seed about three inches deep a fifteen inches apart. Draw a little soil up the seedlings when they are well through t ground.

Peas.—Continue to plant out seedling Pe raised in boxes, choosing a south border other warm position. Plant in double ro made nine inches apart, and allow three four inches from plant to plant in the ro Stake the rows as soon as the plants are e The succeeding rows should be three or fo feet apart, and intercropped with Spinach Turnips. Make two or three more sowings Marrowfat varieties during the present mon in other positions. Guard against mice, a stake the plants as soon as they can be se Fork the ground to present a neat and t appearance.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, E
Woolverstone Park Gardens, Ipswich.

Pot Vines.—The berries on pot Vines swelling for the final time and will soon sh signs of colouring. A moderately dry atmosph should be maintained, and plenty of air admit during the day, also a little during the nig Increase the amount of ventilation early in morning as the sun gains power. Watering this stage requires careful attention. The ber of Black Hamburgh, after they commence colour, should rapidly assume a bluish-black b which denotes perfect finish and rich flavo Berries that require a considerable time to col are usually deficient in this respect, and flavour also. In doubtful cases of this kind application of sulphate of ammonia often ha good effect; this chemical is rapid in its act and should be used carefully or more harm t good may result. If used at the rate of an ounce to a gallon of water, and applied intervals of eight to ten days, it will prom a good colour in the foliage and berries. night temperature should range about 65°, all ing 10° rise on dull days. In sunny weather temperature may be allowed to rise to 80° more with plenty of ventilation. When Grapes are ripe the use of stimulants sh cease, and water should be given less frequen but not so little as to cause the foliage to s

Planting Vines.—Assuming that the Vine border has been made in readiness for planting, the present time is suitable for setting out new Vines. If one-year-old or two-year-old plants are to be used—for preference choose the former—they should be turned out of the pot, and have the ball of roots immersed in a tub of tepid water. Shake out the soil and carefully disentangle the roots, to permit of them being spread out evenly, and work some moderately fine soil about them. Do not plant deeply, as surface roots may be fed and nourished better than those which are planted deeply. The border for the first year need not be more than three feet wide, but it is advisable to make the drainage of the whole border at one time, remembering that the drainage for Vine roots needs to be perfect. Young Vines raised from eyes this spring may be used, as these will now be making rapid growth. They will require careful handling in order not to disturb the roots, which are naturally very tender at this early stage. If young plants of this season's growth are used, the house must of necessity be kept close and warm, but if cut-backs are to be planted they may be grown along steadily, damping the house down and spraying the vines at closing time, early in the afternoon, more or less, according to the weather.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Corydalis bulbosa.—This compact-growing plant, about 6 inches high, does well here, making a good front-border subject in itself, but rendered more effective when early flowering Daffodils are interspersed between the purplish-lilac clumps. At the end of March both subjects were almost in full flower—so they will have passed out of bloom sufficiently early for some later flowering plants to be set over them. This bulbous Fumitory is a good carpeter for a shrubbery, as it flowers before the shrubs are clothed with foliage, and if the roots are planted deeply no customary treatment of a shrub bed will hurt them.

Ribes aureum.—Plants of the yellow-flowering Currant are rarely seen in gardens compared with those of the well-known red kind. Yet the former is as easy to manage as Ribes sanguineum, and it is a little later coming into flower than the red.

Planting.—Though March was a mild month heavy rains have hindered planting, particularly of small subjects. I refer to such plants as Carnations, Canterbury Bells, Geums, Sweet Williams and such like—the planting of which should now be hastened as speedily as possible to give them the opportunity of becoming established before hot weather tries them. Directly these are set out it will be necessary to deal with the autumn-rooted Pentstemons in cold frames. Any last-year plants of the latter left standing in the border through the winter, and still healthy, will be the better for being cut down to within three or four inches of their base. This treatment will result in a bushy habit and size of plant unequalled by those one year old from cuttings. It is, however, in mild winters only that this plant persists healthily through the winter unless the soil is on the light side—hence the need of rooting cuttings annually. Verbena venosa is another subject we have wintered in a cold frame, and are now replanting—it is one of the best of border plants. The old root-stocks had been simply heeled in the frame to keep them dry, because in wet winters a portion of them has a tendency to rot in our heavy soil. Rooted cuttings of this plant will be also planted forthwith.

Hypericum calycinum.—This shrubby plant, popularly known as St. John's Wort and The Rose of Sharon, may be cut back wherever it shows itself to be too aggressive or has become shabby. It does well near trees in partial shade, or in the flower border.

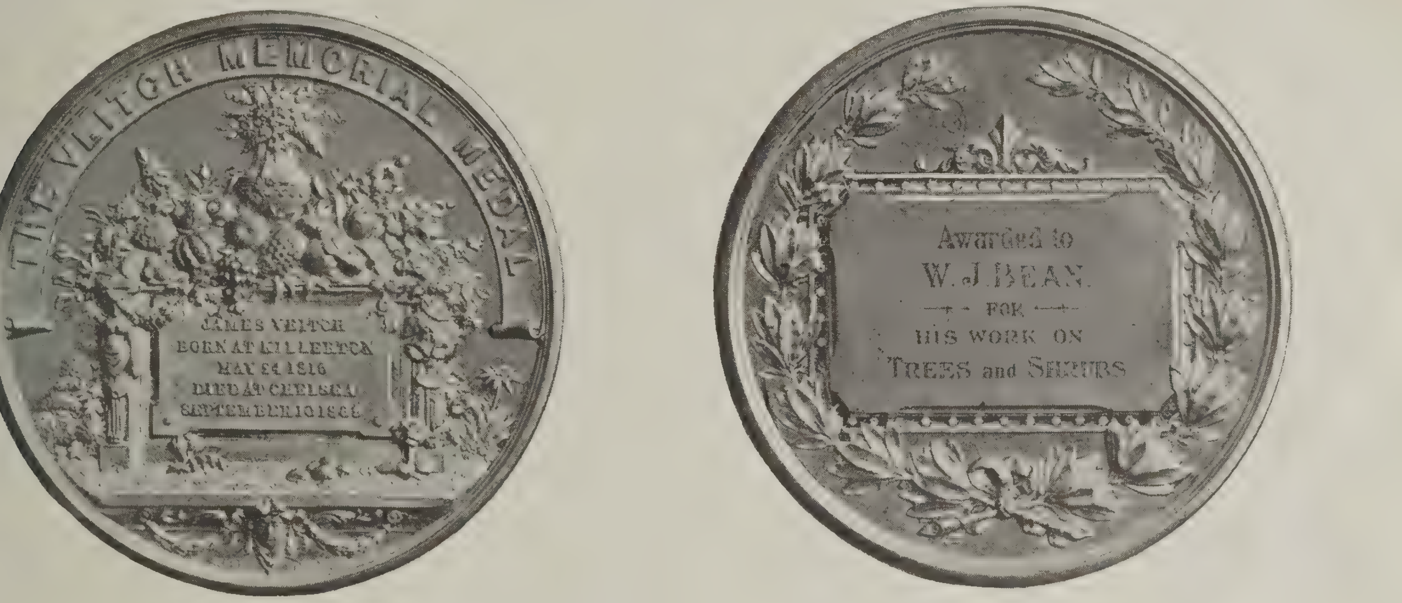

FIG. 88.—THE VEITCH MEMORIAL MEDAL (ACTUAL SIZE).

VEITCH MEMORIAL MEDAL.

Mr. James Veitch was born on May 24, 1815, in the neighbourhood of Exeter, where his grandfather and his father were at that time carrying on a nursery business. When about eighteen years of age, he was sent to London for the purpose of gaining such experience as could only be obtained in those days in a London establishment. He served for one year in the nursery of Mr. Chandler, of Vauxhall, and another year in Messrs. Rollinson's nursery at Tooting. Returning to Exeter and impelled by new ideas, he devoted his energies to the extension of the Exeter establishment, and was mainly responsible for making it into one of the finest nurseries of the times. By means of Orchids purchased from Messrs. Rollison, he founded the collection for which the Veitchian establishments were famous for a long number of years. It will be remembered that the Exeter firm introduced large numbers of new plants, notably trees and shrubs, through their collectors, the brothers Lobb, and it was about this period, in 1853, while still a partner in the Exeter nursery, that Mr. James Veitch came to London and took possession of the nurseries established by Messrs. Knight and Perry, at Chelsea. These he entirely remodelled and so made possible the gigantic business of Messrs. James Veitch and Sons, famous the world over. By virtue of his skill as a cultivator, his genius as an organiser, his enterprise in sending out collectors to various parts of the world, and his generosity in regard to horticultural and other charities, Mr. James Veitch reached a very high position in the world, therefore it was small wonder that when he died on the 10th September, 1869, the horticultural community desired to raise a memorial to his memory. A committee was appointed under the chairmanship of Mr. James Bateman, with Mr. T. Moore as Secretary. Numerous meetings were held, mostly in the Council Room of the Royal Horticultural Society at South Kensington, and various proposals were put forward, such as a Veitch Club, a Veitch plantation, Veitch almshouses, a Veitch pension for disabled collectors, a Veitch portrait, a Veitch medal, Veitch prizes, and a Veitch pension for aged gardeners, all of which were duly considered. A well-attended meeting of subscribers was held on October 21, 1870, when Mr. T. Moore presented a report, which showed that the subscriptions to the Veitch Memorial Fund had reached the sum of £1,012 12s. 9d. Advertising, printing and postages cost £121 14s. 5d., leaving £890 18s. 4d. to be expended on the special object for which the fund was raised. In this report the committee recommended that the proposals to obtain a portrait of Mr. James Veitch and to establish certain Veitch prizes should be definitely adopted. Fortunately, the committee was also able to report that a very excellent likeness of Mr. James Veitch, painted expressly to meet the object of the movement, had been presented by Robert Crawshay, Esq., of Cyfartha Castle—a portrait which hangs at the present day in the offices of the Royal Horticultural Society, Westminster. The meeting agreed that the sum of £890 18s. 4d. should be invested in the names of trustees to whom should be left the charge of working out the various details, and it was suggested that in order to obtain a die for the commemoration medal, the trustees be authorised to use the interest first accruing to them from the capital sum. Mr. G. F. Wilson (treasurer), Mr. T. Moore (secretary), Mr. (now Sir) Harry J. Veitch, Dr. Robert Hogg, Mr. Zadok Stevens, Mr. Wm. Thompson and Mr. David Moore were appointed trustees. The Veitch Memorial Medal thus instituted was first awarded at the provincial show of the Royal Horticultural Society at Bath, June 24, 1873. The latest recipients of this handsome medal commemorating a famous horticulturist are Mr. W. J. Bean, the Curator of the Botanic Gardens, Kew, and the author of *Trees and Shrubs Hardy in the British Isles*, and Mr. Lloyd Praeger for his work on Sedums, and to assist him in his proposed work on Sempervivums, for in both cases a sum of £50 was given as well as the medal. The Veitch Memorial Trust is now vested in the Council of the R.H.S.

B.

BOG OAK TIMBER.

Irish bog Oak is known the world over for its rich, dark colour, beauty of graining and remarkable lasting properties. Owing to the action of the bog in which it is found embedded, the timber is usually of a jet black or dark brown colour, and when cut up and planed presents a wonderfully smooth surface that is susceptible of a silky polish. It is extremely hard and difficult to work, requiring the strongest and sharpest tools for its manipulation, and, partly owing to the antiseptic properties of the peat, is almost indestructible.

The drying and seasoning of bog Oak is a difficult and risky operation, for it is well known to dealers in this timber, that, after being removed from the damp bog, great care and a considerable length of time are required in the drying process, as on exposure to alternate rain and sunshine it will become cracked and shattered from end to end.

Some of this timber that I examined recently was dug out of the bog in pre-war days, and very carefully exposed to the drying influence of the atmosphere under cover in a builder's yard, where the outer wood, which is usually soft and worthless for constructive purposes, was cut away. After being stored for three years the logs were sawn into boards of the required dimensions. Seasoning and thoroughly drying the boards occupied another two years, so that from the time the trees were dug out of the bog until the timber was converted into articles of furniture, a period of nearly seven years elapsed.

Considerable quantities of bog Oak from Ireland have been sent to various parts of the Continent and to America, and it is well known that at an early date, long before foreign timber arrived in this country, some of the finest butts were sent to London in connection with the internal fittings of ecclesiastical buildings. Pulpits, choir stalls, figures and panellings were sometimes all of Oak, beautifully designed and richly carved. It is regrettable, however, to know that some of these early fittings were removed at a later date and foreign timbers substituted, and many of the choicer pieces of furniture that we have to-day were constructed of discarded church panellings, which will account for so many of these being carved with biblical designs. A suite of furniture of bog Oak sold recently included a side-board which was of massive construction and measured 12 feet in length by fully 9 feet high; it was richly carved in figures that represented the twelve apostles. A writing table, dinner wagon and set of chairs of the same design were all of jet black Oak with faultless workmanship. From a history that has been preserved by the family of the person for whom this furniture was specially made, it would appear that the timber was brought from near the shores of Lough Neagh, in Ulster, in short baulks, and converted by a London firm of cabinet-makers. That the timber was brought from the neighbourhood of Lough Neagh can be readily understood, as some of the largest logs that I have seen were dug out of the marshy lands on the banks of the River Blackwater, about three miles from where its waters enter the lake. One log that I saw unearthed from a depth of four feet was 35 feet long and 33 inches in diameter; others were at a depth of 5 feet, and occasionally at as much as 8 feet from the surface.

Both in the United States and Canada bog Oak furniture and panellings are greatly admired, but in its native country it is little valued, and numbers of tree stems may be seen lying about where they were removed from the bogs in reclaiming and cultivating the ground, and the Oak may often be had for the cost of removal.

Trinkets, toys and souvenirs are made by the Irish peasantry from bog Oak, and offered for sale at the principal tourist resorts. The bog Oak industry is, however, of quite modern origin, having been introduced by the Lord Lieutenant of Ireland in 1840. Samples of beautiful design and workmanship were sent to the exhibition of 1851, and brought to the notice of Queen Victoria and her illustrious consort.

Most of the ancient coracles and boats that have been found in Ireland are hewn out of a single piece of Oak, and one of the latter that I saw unearthed at Maghery, where the Blackwater joins Lough Neagh, was of unusual size. The wood was in an almost perfect state of preservation when the boat in its entirety was exhibited in the yard of the adjoining inn, but soon began to split and crumble on exposure to light and air. A perfect specimen of the coracle was found in a bog near Dungannon, in Co. Tyrone, a picture of which appeared in *Country Life*, July 28, 1917.

I have sometimes wondered why bog Oak, which is so plentiful in many parts of Ireland, is not more extensively employed for various constructive works than is at present the case. Doubtless the chief drawbacks are that the logs are expensive to dig out of the bog, difficult to work, and being short-grained and somewhat brittle it is not readily split for fencing or other farm purposes. In house-building it is largely employed for beams and purlins. For firewood the stems are sometimes split up and seasoned where they were dug out, but the resin-stained wood of the Scots Fir is preferred, and after being cut into suitable sizes is sold for fire-lighting in the neighbouring towns and villages. Up to the introduction of Mahogany in 1710, most of the better types of furniture were made of Oak or Walnut; indeed, until about the end of the seventeenth century our houses, ships and furniture were mainly constructed of Oak, and there are still examples of this wood in a perfectly sound condition after being in use for over seven hundred years. It is to be hoped that with the revival in trade and desire for the most beautiful and lasting of our native woods in the cabinet-making industry, bog Oak timber will be more extensively employed than has been the case for some time since. *A. D. Webster.*

ORNAMENTAL GOURDS.

These curious plants, members of the family Cucurbitaceae, are well worth growing on arbours or trellises, and the elegance and singularity of their fruits, combined with their handsome colouring when ripe, make them objects of great interest during the summer months. Owing to their rapid growth and highly ornamental character they are also very useful for covering bare surfaces with foliage.

Gourds are not very exacting in their requirements, but prefer a fairly light, rich soil with abundance of moisture. Seeds should be sown in pots in gentle heat in April, and as soon as germination takes place the seedling should be grown on, under as cool conditions as possible, to prepare them for planting out at the end of May or beginning of June.

The number of varieties is almost unlimited, and as they cross freely with each other new ones are constantly appearing. Although some of the larger fruiting sorts are very handsome they are sometimes more difficult to manage, as the plants are unable to carry the heavy fruits without artificial support. It is usually advisable to grow the smaller fruiting kinds, one of the most common forms of which is of elongated shape with an ovoid swelling at the end, and generally known as the Pear Gourd.

The fruits of the varieties differ considerably from one another in colour. Some have a clear, smooth skin, entirely white, others are dark green with longitudinal bands of either white or a much paler green; in some fruits one half is yellow and the other half a uniform green, and in still others the green colour only forms a ring of greater or less width round it instead of covering half the fruit. These different variegations may also be found combined with one another in several ways, thus giving rise to infinite variety in colouring.

The Apple Gourd has nearly spherical fruit, somewhat flattened at the ends and a smooth, entirely white skin, while the Orange Gourd has fruit almost exactly resembling a ripe Orange in size and colour.

The white-striped, flat Gourd is a very vigorous grower, with rather large leaves and much flattened fruits, striped or marbled wi various shades of green. The Egg Gourd, be ing white fruits of the shape and size of hen's egg, is also a very vigorous grower. T warty-skinned Gourd is not nearly so vigor in growth as the foregoing, the rather thi stems seldom exceeding six feet in length. T fruit is usually spherical and the skin entir covered with numerous excrescences of varia colour, sometimes green, but usually orange white. *W. Auton, Pyrford Court Gardens.*

GARDEN NOTES FROM S.W. SCOTLAN

In the whole round of gardening there is greater gamble than the cultivation of Asia Rhododendrons in the British climate—even the west coast. The temperature of a sing night may suffice to blast the fond anticipati of a whole season. In the past winter— mildest in my recollection—the plants had suffered the slightest check; but on March the sun rose upon a very wintry scene. S veying the lawn thickly sheeted with hoar-fr under a cloudless sky, I mused gloomily, wh shaving, on the ruin that must have been broug on the blossom that made garden and woodl so gay. All the finery I expected to find tur to ashes, nor did I derive any comfort fr the bush first inspected—R. barbatum, 10 f high, set with some two hundred trusses. Eve flower in these trusses was broidered with ri enhancing their beauty; but wait, methoug till the sun gets at you: a fine mess you w be in then!

I was wrong. It really was a very instructi morning, showing the relative endurance of t flower of different species, and illustrating t limitations of a ground frost. A thermomet fixed about four feet above the grass register only three degrees of frost; but the cold h been much more severe at one foot, as w apparent on another R. barbatum which carri some expanded trusses close to the ground. the afternoon, when the frost had gone, the lower trusses were blackened and destroye whereas all those higher up were unblemishe

I next visited three Chinese species whi were in full bloom, viz., R. haematocheilon, Fargesii and R. oreodoxa, and was pleased find them quite uninjured. So were the Indi R. campanulatum and R. Thomsonii, the latt of which I have never seen so loaded with blo som as in this season, and several of Gil hybrids of that species. The only Rhodode drons that suffered disfigurement in this Ma frost were R. arboreum (only one plant happen to be in flower), whereof the trusses were qui difigured, and R. ciliatum, which suffered di coloration. The advantage of these two speci is that there are early and later floweri strains of each, and the display is now bei carried on by the later ones. We have st to get through April, with its fateful "borro ing days," which so often prove deadly to th young growth of Rhododendrons. If that ge frosted, the blossom of the following seas is compromised. I may add that I never gossi about Rhododendrons without wishing that w had possessed the sense to follow America example in substituting for that cumbrous poly syllable the useful English name of "Roseba

It is useful to note chance combination colours. Among the most effective contrast to-day (April 3) is that presented by Narcissu Johnstoni var. Queen of Spain, alongside broad plot of the pale lavender Aubrietia graeca this beautiful Daffodil, said to be a natura Portuguese hybrid between N. bicolor and triandrus, differs from all others of the genu in the luminous quality of its chrome-yello perianth—the Greek Aubrietia holds its own we among the many more highly coloured garde forms, and excels them all, I think, in hab of growth.

Another very satisfying effect may be secure by allowing Anemone fulgens to rear its flamin scarlet rays alongside and mixed with Musca conicum, usually known as "Heavenly Blue" and a third arrangement to which each succee ing season adds richness consists of an inne

ınd of Narcissus minor, with an outer one of
:ilia siberica, round a circular bed filled with
her things. In planting the error should be
oided into which we have fallen, namely, of
ɔt making the double band broad enough.
ought to be at least two feet broad, and
ree feet would be better, for these bulbs in-
ease very fast. *Herbert Maxwell, Monreith.*

NOTES FROM GLASNEVIN

The weather during March was, on the
ıole, drier and brighter than in February,
nsequently there was an improvement in the
neral appearance of the Glasnevin Gardens.
any interesting trees and shrubs came into
wer, and among them the various species of
unus were noticeable. Prunus dasycarpum,
e so-called Black Apricot, was early in
oom, and appears to be uncommon in gardens.
is certainly worthy of cultivation, as the
wers are produced in abundance; they are
re white, of good substance and well dis-
ayed against the dark brown shoots. Prunus
ira, one of Mr. Wilson's introductions,
ossomed soon after, and promises to be a
eful, early-flowering species. The flowers
e not large, pale pink in colour, produced on
od of the previous year as well as on spurs,
in other Peaches. It has not the decora-
ve value of some of the fine forms of Prunus
rsica, but, here at least, is much hardier.
ıe purple-leaved variety of the Sloe is a use-
l small tree throughout the season. It is
w, at the end of March, in full flower, coming
succession to P. cerasifera purpurea which
passing, and throughout the summer and
tumn the foliage is attractive. The beauti-
l Prunus tomentosa is fast opening its
wers, and if lucky enough to escape frost it
ould make a good display in early April. It
a low-growing species, densely twiggy, the
anches pendulous and spreading, so that the
ısh is as broad as it is tall, and when
vered with white flowers makes a wonderful
splay.

A bush of Ceanothus rigidus, 6 ft. high and
much through, is now a mass of blue flowers,
ıich show up well among the small, toothed
ıves. The Warley variety, close by, is flower-
g quite as freely, and promises eventually to
of equal size. Osmanthus Delavayi, now
coming well known, has been very fine this
ring, although slightly browned by frost
cently. It is a vigorous grower, and a speci-
ən planted near the rockwork threatens to
tgrow its position. Uncommon and botanic
ly interesting rather than highly ornamental
Plagiospermum uniflorum, one of Mr.
ırdom's introductions. A spiny bush form-
g a mass of rather slender twigs furnished
summer with narrow leaves, it bears its
ıall-petalled, white flowers most freely on
oots of the previous season.

Rhododendrons in the open are represented
w by R. emasculum, Hort., a R. dauricum
brid having the peculiarity that the stamens
ver develop. R. hippophaeoides is a useful
d pretty dwarf bush bearing clusters of
nost blue flowers at the end of the twigs:
ıile R. Augustinii is also showing the blue
lour in the buds, but is not yet fully open.
virgatum, a low, spreading species, bears
mparatively large flowers in the axils of the
ıves, after the manner of R. racemosum, but
e flowers are larger and not so numerous.
is also somewhat similar to R. oleifolium,
ıich flowers in the same way, and is just
ening. Indoors, some old forms of R.
boreum are in full bloom, also R. Edge-
ɔrthii, R. albescens, R. albescens ×
iicalyx, R. Beauty of Tremough and R.
ılhousiae.

Tulip species are flowering well now, and the
rious forms of Tulip Kaufmanniana have
en beautiful for some weeks. The form
lled T. Kaufmanniana intermedia is parti-
larly pleasing, being rich yellow inside
shed with pink on the outer segments. T.
ıufmanniana coccinea is a particularly richly-
loured form, and, like the former, is scarce.
Eichleri is very striking with its immense
ırlet blooms, and makes a wonderful show on
a sunny day. The following are also now in flower: T. pulchella, T. triphylla, a pretty dwarf yellow species, T. sylvestris, and T. praestans Tubergens' variety, while numerous others are in bud.

The quaint and not readily noticed flowers of Iris tuberosa have been appearing lately, and are not without charm in their combination of green and black. Fritillaria askabadensis, with its pendulous, creamy-white flowers, is more generally attractive, and makes an interesting and pretty group in a sheltered position.

Primulas such as P. denticulata and its varieties are now bright in the bog garden and moister parts of the rockery, while in other positions on the rockery there are good groups in flower of P. ciliata superba, P. pubescens alba, P. Fortunei, and P. frondosa. P. pulchelloides, P. Dubernardiana and P. redolens are flowering in the alpine house.

Orchids in flower or flowering recently include Chysis Chelsoni, Dendrobium Kingianum and D. K. album, D. aggregatum majus, Maxillaria variabilis, Masdevallia minutum, Angraecum fastulosum and Paphiopedilum barbatum Warnerianum. *J. W. Besant, Glasnevin.*

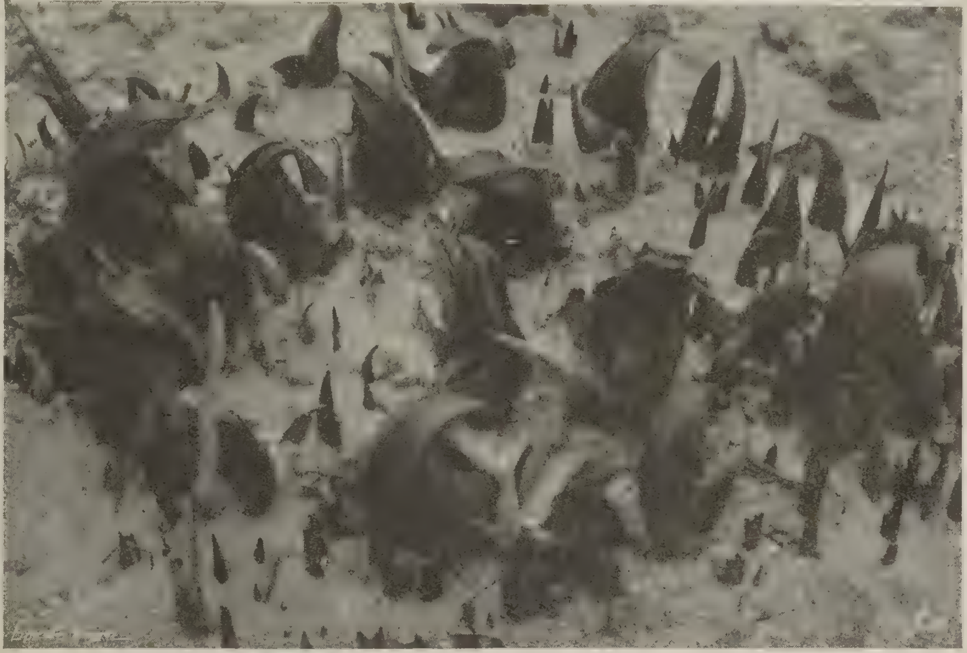

FIG. 89.—SYMPLOCARPUS FOETIDUS IN THE CAMBRIDGE BOTANIC GARDEN.

SYMPLOCARPUS FOETIDUS.

The family of Araceae provides us with a number of very interesting plants, among which may be included Symplocarpus foetidus, known as the Skunk Cabbage, or Skunk Weed. This is closely allied to Lysichitum and Orontium, each of which is monotypic and belongs to the same section or tribe known as Orontiaea, a group of Aroids having hermaphrodite flowers. The Skunk Weed may, perhaps, be considered more interesting or curious than beautiful, although the large handsome foliage has a somewhat tropical appearance. The plant has a thick, fleshy, tuberous, annulated root-stalk, branches of which bear the large foliage leaves one year, while the next year they produce flowers which are surrounded by large, membranaceous, sheath bracteas, and incipient leaves. The hooded, coriaceous spathes which appear in February remain fresh for some time and are from 3 to 6 inches high, borne on short peduncles, broadly ovate, acuminated, involuted both at the sides and at the extremity, and so singular in appearance that they might at first be taken for some kind of shell, rather than vegetation. The ground colour on the outside is yellow, but so spotted and blotched with blackish purple as to nearly obliterate the ground colour, while the inside is dark purple. The spathe surrounds a globose, short-peduncled spadix, about the size of a large Hazel nut, of a purplish tint; the upper part is entirely covered by flowers, which consist of a perianth of 4 erect scales, concave and depressed at the top, and so placed and shaped that their edges meet and form a square flower, through the centre of which the tips of the four bright yellow stamens and purplish style slightly protrude. The filaments are very short, while the broadly-ovate anthers with two cells which open longitudinally face the scale, so that the back is directed to the pyramidal style which is four-sided at the base, and terete above. The ovary is one loculed, with a solitary, suspended, anatropous ovule.

After the spathe decays the spadix continues to grow, and with it all parts of the flower except the anthers. The fruit develops into a large head of one-seeded berries, each one being about the size of a Pea seed, white, tinged with green and purple. The strong, bright green leaves are broadly cordate, petiolate, acute, with numerous branching veins which are prominent beneath a broad midrib; they are from one to three feet high and from eight to ten inches in width, the broad petioles being hollowed in front, sheathing at the base, and appearing in April and May, but they do not attain their full size until the spathe has decayed.

The name of Skunk Weed, or Skunk Cabbage, is derived from the foetid, or Skunk-like odour resembling that of the animal so named, and is given off from any part of the plant, but only when it is bruised.

Symplocarpus foetidus appears to have some medicinal properties, for in the *Treasury of Botany* the seeds are mentioned as useful for coughs, and Lindley, in the *Flora Medica*, states "the fleshy tubers are acrid, but when dried and powdered are anti-spasmodic, and an excellent remedy for Asthma, Catarrh and chronic cough. Also employed with success in histeric paroxysms, dropsy, rheumatism, and even epilepsy." But Dr. Bigelow states that it should be administered with caution, as he has observed it to cause vomiting even in a small quantity, and to produce headache, vertigo, and temporary blindness.

This interesting plant should be grown in a damp position; the illustration (Fig. 89) shows a clump growing in the water garden in the Botanic Garden, Cambridge. The species is a native of North America from Canada to Carolina, where it grows in the swampy meadows, and was introduced into this country in 1735. *F. G. Preston, Botanic Garden, Cambridge.*

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EARLY BOTANIC PAINTERS.

No. 4.—John White (1585—93).

DURING the numerous sea voyages undertaken by various nations in the fifteenth and sixteenth centuries, the employment of a cartographer and artist appears to have been general. Upon him rested the responsibility of providing pictorial evidence of the strange lands and peoples discovered; and his duties varied with the objects of the expedition. In the case of the artist who accompanied the now unknown originator of the *Herbarius zu Teutsch* (published in 1485) to the East, his chief duty was to portray plants in their natural forms and colours. Jacques Le Moyne tells us that his duties on the Florida Expedition were "to map the sea coast, and lay down the position of towns, the depth and course of rivers, and the harbours; and to represent also the dwellings of the natives, and whatever in the province might seem worthy of observation." He may have painted some of the plants of Florida; but De Bry, whose chief interest was in the natives, did not engrave any, and seldom did so in the *Grands Voyages*, even when he had the material at hand.

An interesting record of the duties of an artist attached to an expedition to America is to be found in the British Museum, Addit. MS. 38,823. which is the carefully written commonplace book of Sir Edward Hoby, covering a period from about 1580-88. These instructions occur at the commencement of the MS., and are dated 1582. After giving full details of the duties of "The Master," there follow "Instructions to be obserued by Thomas Bavin," the artist of the expedition. First come detailed instructions for making a plotted map of the new country, indicating its natural features and resources by a series of arbitrary signs; then are added some miscellaneous remarks, among which occur these words: "Also drawe to life all strange birds beasts fishes plants herbes trees and fruits and bring home of each sort as nere as you may." The resulting collections of paintings would necessarily be of a miscellaneous character; but those containing botanic paintings would be of some considerable importance if they have survived to the present day. The only sixteenth century collection known to me at present is the one dealt with here.

The story of Sir Walter Raleigh's attempts to found the colony of Virginia is too well known to need a long account here. After a first attempt in 1584, on August 17, 1585, a colony of 108 men under Ralph Lane was landed by Sir Richard Grenville on what is now Roanoke Island, off North Carolina. On June 19, 1586, the entire colony left for England on Sir Francis Drake's fleet, the attempt having proved a failure after a ten months' trial. Thomas Harriot was Raleigh's agent on this expedition, and published an account of it in Latin in 1588; and John White (or With) was the cartographer and artist. A few days after the colonists had left for England, Sir R. Grenville again arrived at Roanoke, and left fifteen men there. Raleigh next sent out 121 persons under John White, who reached the island on July 22, 1587, but found none of the fifteen men alive. Soon after, the distress of the new colony made it necessary for White to return to England for supplies. His attempts to bring help were frustrated by the war with Spain, and he was kept in England until about 1591. When the relief at length reached Roanoke island, it found that the entire colony had vanished. Thus, these early attempts to found an American colony resulted in little more than a few more names added to the map. White returned to England, having lost both his daughter and granddaughter (Virginia Dare, the first English child born in America), and retired to Raleigh's estates in Ireland, where he was last heard of in 1593.

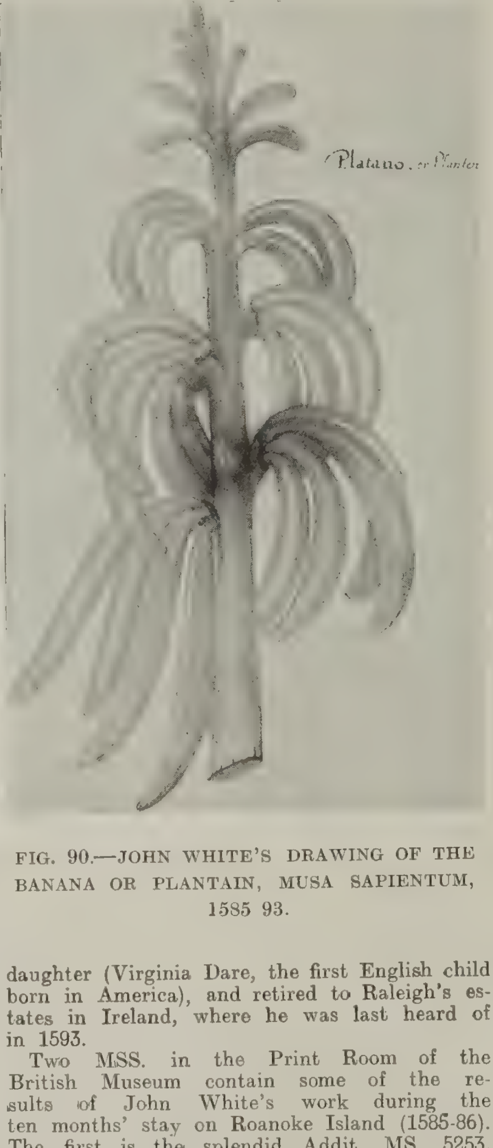

FIG. 90.—JOHN WHITE'S DRAWING OF THE BANANA OR PLANTAIN, MUSA SAPIENTUM, 1585 93.

Two MSS. in the Print Room of the British Museum contain some of the results of John White's work during the ten months' stay on Roanoke Island (1585-86). The first is the splendid Addit. MS. 5253, from which De Bry selected twenty-three paintings for his engravings in the first part of the *Grands Voyages*, 1590. The second (Sloane MS. 5270) is a curiously mixed collection, containing cruder duplicates of some of the paintings in the first MS., a number of contemporary paintings unconnected with the Virginia expedition, and a considerable number of mediocre paintings of English plants of about 1620 or later. The true relation between these two MSS. is still obscure. The studied finish of the first, in which silver and gold are used in some of the paintings, is, in my opinion, not what we should expect as the actual work of an artist in a far-off country; and White's return to America in 1587 would have prevented any very careful revision of his paintings. I am inclined to think that White's rough drafts (some of which may be those in the second MS.) were put into Le Moyne's hands to be worked up into better form; Le Moyne being in the service of Sir W. Raleigh at that time. Moreover, it is stated that De Bry obtained *copies* of White's paintings. However, in the absence of definite proofs, the paintings in the first MS. must be accepted as White's.

Addit. MS. 5253 has the following title:— *The pictures of sondry things collected and counterfeited according to the truth in th voyage made by Sr. Walter Raleigh knight, for the discouery of La Virginea. In the 27th yeare of the most happie reigne of our Souer-aigne lady Queene Elizabeth. And in the yeare of or. Lorde God.* 1585. Most of the inscriptions are written in a beautiful "italic" handwriting. The first painting is an elaborate map of part of the east coast of North America— one of those charming maps with ships on the sea and dolphins sporting. The numerous plac names, including those of the French settlements in the south, all go to prove that this MS. was a home product. In addition to the pictures o the natives and their dwellings, many of them masterpieces, there are numerous fishes all very well represented, the land crab, the Tiger Swallow-tail Butterfly, scorpions, three studies o the Fire-fly, one of a biting fly, and six botani paintings, very skilfully outlined and carefull coloured.

These six botanic paintings occur about th middle of the MS.; and it is probable that thos of the Banana and the Pineapple are the earlies surviving paintings of these fruits. The details of these interesting paintings are as follows:— (1) Asclepias sp. Milkweed. Inscribe "Wysauke. The hearbe wch the Sauages cal Wysauke wherewth theie cure their wound wch they receaue by the poysoned arroes o theire enemyes." This plant appeared i Gerard's *Herball*, 1597, Bk. 2, c 334, with a woodcut evidently inspired by White's paintin He varied the name to "Wisanck," however and from a reference made to Raleigh's colon it is evident that he wrote up this plant in 158 or 1587. and did not correct his note whe White returned about 1591 with the news tha the whole colony had perished. (2) Sabbati gracilis. A gentian. No inscription. (3) Mus sapientum. The Banana tree. (Fig. 90), an (4) a life-size study of the fruit (of a large reddish variety), which is shown also in cross-sec tion. A. de Candolle, *Origin of Cultivat Plants*, 1886, devotes several pages to the ques tion as to whether or not the Banana is ind genous to the New World; the evidence bein in favour of its Asiatic origin and early intro duction into America. (5) Mammea americana Mammee Apple. A single fruit, inscribe "Mammea." (6) Ananas sativa. The Pin apple (Fig. 91). All the evidence is in favou of the Pineapple being of tropical America origin. However, those seen by White wer no doubt in cultivation by the natives. It surprising to find at how late a date the Pin apple was actually brought to England. Und date, August 9, 1661, Evelyn records in hi *Diary*, "I first saw the famous *Queen P* brought from Barbados and presented to h Majestie; but the first that were ever seen England were those sent to Cromwell foure yea since" To this, the editor, William Bra added a footnote in 1818, "At Kensingto Palace is a curious picture of King Charles r ceiving a Pineapple from his (?) gardener M Rose, who is presenting it on his knees." B seven years later Evelyn again records seei the fruit for the first time! He now called "the *King-pine*, growing in Barbados and t West Indies," and described how the Ki handed him a piece to taste. He did not co sider it very delicious, but preserved his prej dice by adding "possibly it might, or certai was, much impair'd in coming so far"!

The absence of Gerard's "Potatoes of V ginia" in this MS. is significant, and confir the now general opinion that he erred as to t place of origin.

This MS. is somewhat damaged as the res of a fire at Sotheby's in 1865, when it w saturated with water, and remained und essure for three weeks. The result was that many cases perfect "off-sets" of the paintgs were found on the interleaves; and only e most careful treatment has preserved both e originals and the "off-sets," now bound in parate volumes. *S. Savage.*

PUZZLES IN PLANT NAMES.

The fact of Black Currants being called epper by the French on account of the strings fruit being like those of Piper longum recalls w our Currants were named on account of the dividual fruits being somewhat like the small ied Grapes imported from Asia, and on that count named Corinths at first, and soon thereter "Currans." It is only during recent years at the Scottish proletariat have used the nglish name, Red and White Currants having en usually named "Rizzers" from their rtly dry and shrivelled appearance when dead pe, while Black Currants were Blackberries.

But there is a vast number of curious names, e origin of which is involved in whole or rtial obscurity. In Gerard's list of Old ames, and some of them are very old indeed, gives Branke Ursine as the name for Cuthrdole and Cuthbertill, obviously the same ord. Quite readily we would say the plant eant is Acanthus mollis, but even in those ys they were given to alter the names of ants, and so when we go far enough back we nd Cuthberdole to be a phonetic form of . Cuthbert's Cole, and that another old name r it was Seadock and Hollyhock, the Althaea ficinalis of botanists. And we all are aware w about 350 years ago Hollyhock was transrred to a novel plant which, among its other ames, had that of Beyond-Sea-Roses, and this, 0 years later, we find changed from a French traction into Rose Tremière, though nobody inks of calling it now anything else but Hollyock. The French, indeed, had quite a fair umber of plants bearing names due to changing om one language to another; these are often rious enough, and sometimes puzzling to ose who meet with them. But as Latin equialents are not wanting in most cases, a fair uess may be made. There is the remarkable atesoriz or Tecesorite, a very old name for edum album, and equivalent to the true nglish Museballok and Musecode. It is corpted from the French *Teste de souris*, and is curious that *Teste* has been confounded by me with *Tête*, and the meaning thence supосed to be Mousehead, which the old Latin ame of Testiculus muris shows to be wrong, as ould be confirmed by a glance at a leaf.

The Scot sometimes stole a name from France the bewildering of his southern neighbour. uch a one is Aippleringie, a common Scots ame for Southernwood, that aromatic sub-shrub f which most wives of working men conveyed a prig to church with unfailing regularity. We ave to go further back than the French *urone*, even to *Aueroigne*, which through cots Averoine and other changes was stabilised t last as Aippleringie. The root is, of course, he Latin Abrotanum. There is an instance of a lant having an English and a Scots name of a imilar meaning in Veronica Beccabunga, and oth derived from an Anglo-Saxon source pparently, but not essentially different. The nglish is the well-known Brooklime, the Scots Vellink. The former we are able to trace for enturies through remarkable variations till in he 16th it occurs as Broclem, the first syllable eing obvious, and the latter a contracted form f leomeke. The Scots "Well" again correponds to the "Brook" of England, and (l)ink o lime, though it is a shade nearer the original. t is well known that some of our poets refer to lants in a language not always easy to transate. There is one reference which, clear as Tennyson usually is, has not, I think, ever been atisfactorily worked out. A well-known writer ttributes red and purple Tulips as proper :—

"My dust would hear her and beat,
Had I lain for a century dead;
Would start and tremble under her feet,
And blossom in purple and red."

I sometimes wonder if the poet had in his subconscious mind the lines of Clare

"Fumitory—
Whose red and purple mottled flowers
Are cropped by maids in weeding hours."

How flowers receive names is well illustrated by the following relation: Last year a correspondent in Alberta described to me some of the prairie flowers of that province, among them one of varying colours and very common, which she called the Prairie Crocus. The name aroused my curiosity, and I asked for seeds, which were forthcoming in the past winter together with a shrivelled flower, an Anemone obviously, and if not Pulsatilla a species nearly related. Here is another instance:—

Last year I had some correspondence regarding the identity of a flower worn round the necks of girls on the occasion of special merry makings in one if not more Border towns. It was called Rararae from a doggerel rhyme that the wearers sang "Rararae, the nicht afore the fair," etc. The plant was identified as Ægopodium Podagraria, and it was ultimately explained that the flowers were tied on strings and so worn. This is an example of quite a local name, the origin of which will no doubt be forgotten ere long.

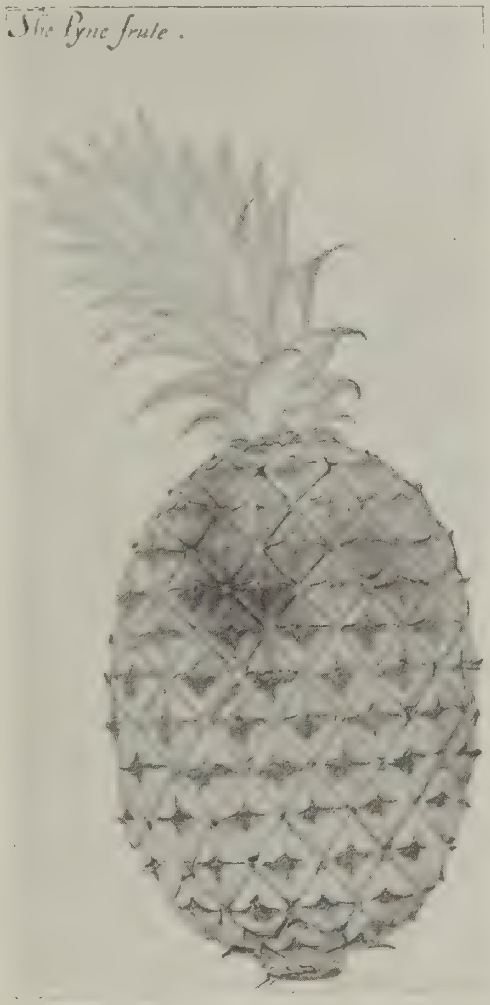

FIG. 91.—JOHN WHITE'S DRAWING OF THE PINEAPPLE, ANANAS SATIVA, 1585-93. (SEE PAGE 200.)

But sometimes a name is perpetuated by some abiding memorial. Of such, a plantation here affords a ridiculous example. When it was being planted Pinus austriaca formed the chief part of the trees, and the foreman forester, when he required one of these, called out for a "Pennystraiky," and such is the designation that particular spot bears to this day! Few, if any, know why it is so-called, and certainly the reason cannot much longer be remembered.

Those acquainted with the bygone literature of gardening know how easy it is to make mistakes in identifying plants by the names given, or finding philological reason for a name, and some of these, when pointed out, the author fails to correct. First and last, all the mistakes in Miss Amherst's *History of Gardening in England* have been indicated, but the mistakes have been perpetuated in every edition There is Carsyndyllys, clearly two names, which the authoress thinks is Cress and Lily, instead of Dill for the latter—Ceterwort (Helleborus foetidus) is there Ceterach; Scalaceh (Convallaria Polygonatum) is Sinapis arvensis. These however are not so amusing as the mistakes made by older generations of writers who attempted to supply meanings to plant names, but of these one may be silent at present *R. P. Brotherston.*

ORCHID NOTES AND GLEANINGS.

CATTLEYA STUARTII ALBA.

One of the best forms of the C. labiata section obtained by crossing C. Mendelii Queen Mary and C. Mossiae Queen Mary, both famous white varieties, is sent by Messrs. Flory and Black, Slough. The two-flowered inflorescence has finely formed blooms each nearly seven inches across, possessing very broad, pure white sepals and petals, and a large crimped, white lip with a broad band of reddish purple colour in front of the yellow disc. It is a charming blending of the two favourite species used in its production, the labellum showing the colouring of both parents, although that of C. Mendelii is most evident.

LAELIO-CATTLEYA NARCISSUS.

Messrs. Flory and Black send this new cross between L.-C. G. S. Ball (C. Schröderae × L. cinnabarina) and L.-C. Mercia C. Schröderae × L. flava), a very pretty flower in which the clear yellow of L. flava fixes the colour, the red tint of L. cinnabarina not appearing, although the crimped lip shows the influence of that species. The whole flower is buttercup-yellow, with the soft white ground giving lighter shades on the bases of the petals and lip.

INDOOR PLANTS.

CANNA.

The interesting article on Cannas, by Mr. John Heal (p. 171), should serve to draw the attention of growers to a valuable class of plants which seem to be neglected nowadays. The plants should now be in their flowering pots, which should be of six inches or seven inches in diameter. The growths should be restricted to one strong shoot. Where large specimens are required several plants should be placed in a twelve-inch pot, or dry roots that are just starting into growth may be used for this purpose. As Cannas are gross feeders, a rich compost is necessary; some dried cow dung or material from an old Mushroom bed should be added to the compost. When growing freely ample supplies of water and high feeding are necessary. Large specimens are very useful in the conservatory, as they will continue flowering until Chrysanthemums take their place in the autumn.

TECOMA ALATA (SYN. T. SMITHII).

This is a very useful plant for autumn and winter flowering, and may be readily propagated by means of cuttings inserted at this time. If large flower heads are required the growths should be restricted to a single stem: if bushy specimens are desired the plants should be stopped once and several shoots allowed to develop. The young plants should be potted on, as they require more room, until they are in six-inch pots, in which size they should be flowered. They require perfectly cool treatment; in fact, it is an advantage to stand them out-of-doors during the summer. Whenever the flower buds show, lateral growths usually develop below them: such growths should be rubbed out, for if allowed to develop the flower buds will soon drop. *J.*

DAFFODILS AT SUTTON COURT.

As the meadows have for some time been carpeted with the small yellow Daffodils so much beloved by the Herefordshire children for making into posies, the memory of a former visit to Sutton Court, four miles from Hereford, came back and prompted me to make another journey there in the certain hope that among Mr. Backhouse's seedling Daffodils would be found much to interest and delight.

On reaching the house, attention was at once divided between a large bed of Easter Eve, 12 inches high, used with considerable effect as a bedder—while Parker was only showing bud—and a bed of mixed Hyacinths grown from seed to flowering stage on the place. The owner is naturally proud of these, as some were last year selected by a Hyacinth-grower to work up stock from.

Last year two magnificent Daffodils, Mrs. R. O. Backhouse, the "pink Daffodil," and Viscountess Northcliffe, pure white, of the triandrus group, arrested attention. This year there are many other good things, with, apparently, many more to follow. Very soon I was guessing as to whether a bloom should be classed as a Leedsii, a Barrii, or some other type, so much have the sections been intercrossed. Daffodils seem to have taken possession of nearly the whole place at Sutton Court. A greenhouse was full of selected kinds brought into flower together, so as to have the necessary pollen ready at the right time for carrying on the work of crossing. The kitchen garden showed evidence of little else, and I noted a beautiful clump of flowers held well up, with a heavily frilled cup, and felt inclined to regard it as an improvement on Golden Herald.

A large flower with creamy perianth, measuring 4½ inches across, with an orange-red, frilled trumpet, 1½ inch long and 2¼ inches wide, seemed to command the name of It. Face the Foe (the foe being the R.H.S. Narcissus Committee!) is one of Mr. Backhouse's favourites, and in these days, when growers for market are ever on the look out for good flowers with long stems, this should take their fancy. It is best described as a giant white Leedsii, and several flower stems were measured 2 ft. 11 in. long.

Among the younger seedlings there were many showing cups of various degrees of redness. One with a yellow perianth measuring 4 inches, with a trumpet 1¼ inch long by 1 inch across, looked rather lighter in the red than C. J. Backhouse, while another, 4¼ inches across the yellow perianth, showed a trumpet 1½ inch long of a brighter red than the last named variety.

A cross between an African and a French Marigold was suggested by a flower of the Incomparabilis type, having a creamy perianth and a wide cup, showing considerable doubling and frilling, and a mixture of red and yellow.

Passing to the Archery Butts, bows and arrows are suggested, but the archery, practised pre-war, has given place to Queen Daffodil. As the seedlings have multiplied they have been lined out here. The trade has once and again made selections, and still there is an abundance of good things left. The white Daffodils strike one both as to their variety and purity, and one wonders why they are not popular. Perchance it may be that growers have found that in the past the white flowers—such as Dryad and Waterwitch—attractive as their whiteness makes them, have been poor growers, and seek to steer clear of Daffodils having no tinge of colour in the cups or trumpets. But surely Mr. Backhouse has varieties with a stronger constitution, as bed after bed of white Daffodils were noted without a sickly plant in them. Some of these are small Leedsii flowers, some have longer cups (or trumpets) frilled and contracted at the mouth, suggesting a fly trap. Others with twin or triple flowers are of the triandrus type, and for these white varieties it is possible to predict a great future when they become better known. An exhibit made up of nothing else at one of the R.H.S. meetings would certainly arrest attention.

What of the future? Who can tell? Before leaving Sutton Court a visit was paid to the frame ground. Here numerous pots with seedlings in their first and second years held possession, and indicated how keenly interested the owner is in his work. *P. M. T.*

[A box of exquisitely beautiful Daffodil blooms accompanied the above note, and every bloom showed the mark of good breeding and high cultivation. Viscountess Northcliffe, Mrs. R. O. Backhouse, Stella Tid Pratt, Red Guard, and some cyclamineus and triandrus hybrids were included, and were a revelation of what may be expected from Sutton Court in the near future.—Eds.]

MARKET FRUIT GARDEN.

The first half of March was cold enough to give a healthy check to forward vegetation. The rest of the month was very mild. The season is early, but, according to my records, not abnormally so. It is about three weeks earlier than last spring, it is true; but that was a very backward season. Vegetation is not so forward as it was in 1920, and just about the same as in 1921, which was a good fruit year. Rain fell on fourteen days in March, the total amount being 2.16 inches. This is only about an average for the month; but the land was already so wet that very little has been possible in the way of cultivation. Weeds have been growing all the winter, and an opportunity to deal with them would be very welcome.

Plums in Bloom.

The first few Plum blooms opened on the 21st. Before the end of the month Black Diamond, Monarch and Rivers' Early Prolific were in full bloom, and President and Victoria were in the white bud stage. Czar, Pond's Seedling and Belle de Louvain are still to open, in the order named. Up to the time of writing, there has been no frost during the blooming of Plums, and conditions have been ideal for pollination—mild, sunny and calm. It is to be hoped, therefore, that Monarch and Rivers' Early Prolific, which are as full of bloom as they could possibly be, will set good crops. Altogether the show of bloom on Plums is astonishing, considering last year's heavy crop. All the varieties mentioned above give good promise, with the exception of Czar and Belle de Louvain, which will bloom lightly. But there is many a slip between the bloom and the crop; and there may be a very different story to tell later on.

If my trees are any indication, growers will be well advised to guard against leaf-curling Plum aphis this season. I never saw so many of these insects before the opening of the bloom. They were breeding freely by March 3, and massed on the still unopened buds. I counted eleven on one bud. This was fortunately noticed when spraying with copper sulphate was in progress, and the addition of nicotine to the wash pretty well cleared the trees of aphis. To make sure, however, they will be sprayed again with a nicotine wash immediately after the fall of the petals, which is the latest stage at which it is of much use to spray against this pest.

Spraying with Copper Sulphate.

I wonder why spraying in late winter or early spring with a solution of copper sulphate has largely gone out of fashion. I am convinced that I have had much less trouble from canker on Apples and brown rot on Plums since this practice was adopted. But the object of this note is to record the fact that a wash consisting of 10 lb. of copper sulphate to 100 gallons of water has considerable cleansing action. I discovered this to my surprise last year, and have now verified it beyond all doubt. I have been watching some trees which were green with a mossy coating. They were sprayed on March 19, and they are now practically clean. Little or no result is seen immediately after spraying, but gradually the moss dies and e poses the clean bark. Each shower of ra seems to advance the process. The cleansi action is, of course, less than that of caust soda, but it is quite equal to that of t popular lime-sulphur wash, which is a far le powerful fungicide and much more expensiv I see no reason to use any other winter wa than copper sulphate, except where the tre are heavily coated with lichen, when nothi but caustic soda will serve the purpose. It worth much to avoid the disagreeable busine of using a caustic wash on a large scal Copper sulphate may be used when the fru buds are in an advanced stage. It will scor the outsides, but this does not appear to matte The Plum buds which I scorched in March a now fully open, and not the slightest inju can be detected.

Length of Spurs.

It has for a good many years been the custo on this place to prune laterals to about 5 i long as the first stage in inducing fruit spu to form on Apples. It is interesting to note th experience gained in the conduct of the valuab pruning experiments at the East Malling R search Station leads Mr. N. H. Grubb to recor mend a similar practice. In the experimen the trees have been either "long spurred (laterals cut to three good buds, about 1½ 2 in.), or "short spurred" (laterals cut to o good bud, about ½ in. to ¾ in.). Strong latera have in all cases been cut clean out. The on bud method has been almost ruinous with son varieties. The three-bud method gives go results in some cases, particularly with t weaker laterals. But, says Mr. Grubb, obse vations strongly suggest that a five or six bu method would be still better, especially with t stronger laterals. The best recommendation h can make at present is this: By all means c out all the strongest laterals, unless wanted leaders. Of those that are spurred, cut t stronger laterals to five or six good buds (var ing from 4 to as much as 6 in.), and the weak ones one to two buds shorter. These remar apply to newly-formed laterals which have n previously been cut. The treatment of these their second year depends on the result of t first cut. If it is certain that a fruit bud ha been formed on the two-year-old wood, the provided the new wood growths are not ve vigorous, everything may be cut away to th bud. If there is any doubt, or if the wo growths are strong, these should be shorten to about one inch, in the hope of weakeni the spur and working it back to a fruit bu a year or two later.

Silver-leaf in Apples.

I have seen Silver-leaf disease develop o Apples that have been top-grafted, but neve on normal trees. It appears, however, from th report on Fungus Diseases of Crops in 1920 1921, recently published by the Ministry o Agriculture, that there has been a marked increase in the number of attacks on Apples This is rightly described as the most seriou feature of the recent developments of th disease. Should Apples become as liable to th disease as Plums are, the situation will inde be serious. Many hundreds of Apple tree have been killed in Lincolnshire, Cambridgeshire and Huntingdonshire, and reports o serious damage have been received from Middlesex, Hants and Devon, whilst records of silvered trees have been received from all parts. Many varieties are affected, but Early Victoria, Lord Grosvenor and Lord Suffield much more commonly than others. The worst outbreak o record occurred in orchards near Long Sutton, Lincs. In one case, out of 670 Early Victoria trees, 450 were silvered; and, in another, out of 1,400 about 1,000 showed the disease. No Plums are present in either of these orchards. These trees had been badly pruned, large branches low down having been cut out and the wounds left undressed with tar or any other protective application. The cause of Silver-leaf in Apples is the fungus Stereum purpureum, and the infection and course of the disease are precisely the same as in the Plum. *Market Grower.*

FRUIT REGISTER.

APPLE HANWELL SOURING.

A correspondent sends, from a garden in rth Cumberland, fruits of Apple Hanwell uring with the following remarks: "I send few fruits of Apple Hanwell Souring for your spection. Varieties of late Apples are none plentiful, and Hanwell Souring is one that a decided advantage to have in a collection. e fruits of last year's crop were much smaller an usual, and they possessed a defect common all of last year's Apples in the north—lack flavour." The specimens sent by our corre- ondent are exceedingly attractive and in ellent condition, but we quite agree with n that the flavour is very poor.

Hanwell Souring, which is sometimes known Lawrence's Seedling, first came under notice 1820, and is supposed to have originated at nwell, near Banbury, in Oxfordshire. Hogg scribes it as "an excellent culinary Apple of st-rate quality; in use in December and eps until March, when it possesses more dity than any other variety which keeps to late a period." The fruits are of medium e, and possess a greenish-yellow skin, freely inkled with russety dots, and flushed with mson on the sunny side, the bright colour nning in stripes. It is a very solid, heavy it, and is one that is worthy of inclusion in varieties to be tested for commercial pur- ses at Wisley.

VEGETABLE GARDEN.

THE ASPARAGUS FLY.

The Asparagus Fly, Platyparea poeciloptua, netimes causes considerable damage to newly nted Asparagus beds in the southern counties. The insect is very distinct in appearance, ving head, thorax and legs of a reddish brown, antennae being somewhat brighter and the dy darker in colour. The two wings, rounded the ends, are marked with dark brown and am, zebra-like stripes. The body of the nale is prolonged to a point bearing a well- rked ovipositor, while that of the male is rter and rounded.

It appears at the same time as the first heads Asparagus and may be seen during the eater part of the growing season until June. arcely the size of the common house-fly, the rfect insect is heavy in flight and moves her after the manner of a grasshopper, never ing very high above the surface of the soil. e female insect goes from head to head of e young Asparagus and lays her eggs at the se of the scales as the points emerge from e soil. The eggs laid on those heads that cut are naturally destroyed, but in young ntations, where no cutting takes place, the mage is sometimes serious.

In from 10 to 15 days the eggs hatch and e larvae bore into the young shoots. They d on the tissue, moving in a downward ection, and keep near the surface, thus form- tunnels in the longitudinal axis of the m. They usually attain their full size of out half-an-inch in length by the time they ch the base of the stem, where they pupate. fected stems soon show the result of attack; ere only one or two larvae are present the m may continue to grow, but when attacked several, growth ceases, the head droops and ally the whole stem rots. Should several ms thus perish, root action becomes so re- icted through the loss of the organs of assimi- ion that the plant weakens and frequently

For the control of the pest the advantage of stroying the perfect insect before it can lay eggs is manifest, and although this is not sy a good deal may be done to effect its struction.

One of the best methods is to stretch across e bed at intervals narrow strips of canvas essed with a sticky substance. French growers a capital implement for the purpose, which nsists of canvas stretched on a slightly curved oden frame about 1 yard long and 1 foot de, to which is attached an old scythe handle. The swinging of this in bright sunshine immediately over the young growths of Asparagus causes the fly to rise and large numbers of them are caught on the dressed canvas. During the growing season a sharp watch should be kept for affected stems, which should be removed and destroyed before the larvae reach the pupal stage. *W. Auton.*

HOME CORRESPONDENCE.

Spraying Fruit.—The inquiry on page 168 from *F.* raises a point of the greatest interest and importance to all fruit growers and an exhaustive discussion of it in *The Gardeners' Chronicle* should be productive of much valuable information on the subject. Your correspondent is not the only one by many hundreds to whom the present season has brought a heavy modicum of worry because it was impossible to do any spraying satisfactorily during the period when winter applications are known to be especially effective. And this brings us immediately to the crux of the question. Lime-sulphur dressings have not been made for this express purpose, and we are on the threshold of the moment when arsenate of lead will have to be used to destroy the grubs of the Winter and other moths, of which there are decided prospects of a serious infestation. *F.* would like to make a one solution application, but is obviously doubtful as to the advisability of taking such a step. There are others, too, in the same difficult position, and it is essential that a decision shall be reached by all growers at once. Personally, I should in no circumstances whatever mix lime-sulphur and lead arsenate, as it is my experience that both components lose substantially in value as soon as they are incorporated and applied. The objects to be achieved by the respective washes are so diametrically opposed that it is unreasonable to expect that they will work happily together. Rather than mix these two specifics I should drop out the lime-sulphur entirely for the season, though it is not necessary that this shall be done. When growth is advanced, as it must be ere your correspondent can secure the advice desired through your columns, the use of lime-sulphur at winter strength would be accompanied by real danger, but it can be reduced easily by the addition of more water and still be capable of doing very excellent work. Even when grease banding is done perfectly, and that has certainly not been the case as a general rule during the past winter, arsenate of lead is a dressing which stands alone in importance, and no risk must be taken that its effectiveness will be reduced in the smallest degree. *W. Tiplow.*

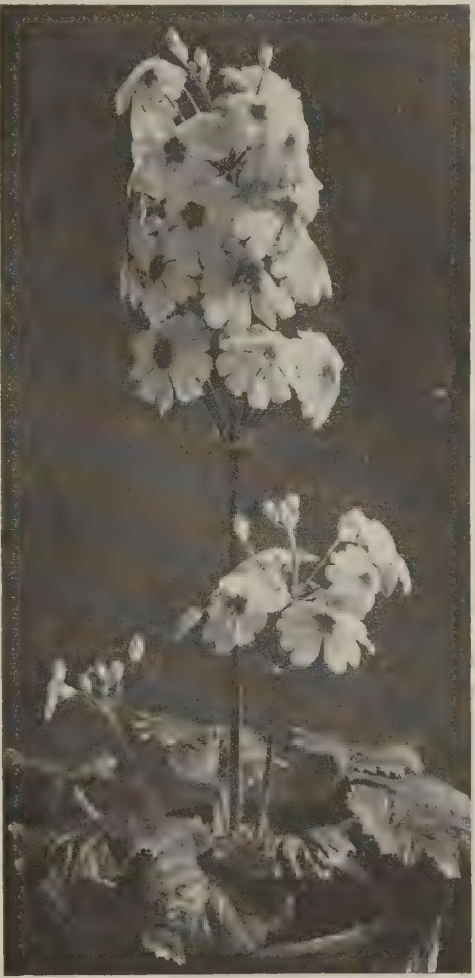

FIG. 92.—A NEW ROUND-FLOWERED FORM OF PRIMULA MALACOIDES.

Gardeners' Wages.—I quite agree with *G.W.K.'s* remarks on p. 151. We should look to the gardening papers to uphold a fair wage. There are employers to-day who take into consideration a man's pension and pay a small salary; do they expect to get good service under such conditions? *W.M.* (p. 166) seems to take it for granted that all gardeners during the war had a high wage, yet it is a fact that many of them had no increase in their salary and others only a very little, besides having to carry on with half the usual staff. Those that were eligible joined the army, others who went as munition workers were able to save a nice sum, and after the war were content to wait for a good place. It is almost impossible for a gardener with 50s. per week to keep himself, wife and family respectable and save money for a rainy day. The only time he can save a little is after his family has grown up. By then he is usually getting on in years and a reason is found for discarding him for a younger and cheaper man. There used to be a saying that the workhouses contained mostly gentlemen's servants, and there is a good deal of truth in it. I was not aware that unemployed gardeners could draw the dole. We do not have to pay for unemployment benefit, which I think is another grievance; why should we be exempt? We have to live when we are out of work. *S. H. G.*

Primula malacoides with Rounded Flowers.—A short time ago, when visiting Messrs. Sutton and Sons' nurseries at Reading, I saw a small batch of plants of a particularly fine form of Primula malacoides, with rounded flowers (Fig. 92). Readers will know quite well that this lovely species has deeply incised floral segments, but in this new-comer there is much less cutting or indentation, and the segments of the corolla are broader and rounder—in short, the blooms more nearly approach the florist's ideal of form, but the grace of the Primula is not lost in this fuller development. In the matter of colour this new form is deep and rich. Whether it will come true from seeds remains to be seen, and at least another year must elapse before the fixity of this type can be determined. It is to be hoped, however, that it will come true from seed, as it promises to be a fine garden plant and a commercially useful one also. Other greenhouse Primulas have produced forms distinct from the type, and it is to be hoped that another useful novelty will result from this round-flowered form of one of the most charming species of the genus. *C.*

Pyrus Scheideckeri.—With regard to the fine illustration of a specimen of this Crab which appeared in your issue of April 7, p. 185, please allow me to point out a wrong quotation from my book, *Trees and Shrubs Hardy in the British Isles.* I am made to say that it is one of the two finest of the fruiting Crabs. What I really wrote was that "P. Scheideckeri and P. floribunda are the two finest of *flowering* (as distinct from fruiting) Crabs." As a matter of fact neither of them has any great beauty of fruit. The tree figured is growing in a border near the Temperate House at Kew, and at the time it was photographed was one of the most beautiful objects I have ever seen. *W. J. Bean.*

SOCIETIES.

ASSOCIATION OF ECONOMIC BIOLOGISTS.

A meeting of this Association was held on Friday, March 23, Professor E. B. Poulton, President, in the chair. Mr. J. H. Priestley gave an address on "The Causual Anatomy of the Potato Tuber." He stated that the underground portion of the stem system of the Potato is roughly circular in cross-section; aboveground the haulm is angular, with three leafy expansions rising from the angles. In the underground portion of the stem a primary endodermis is found to be present, which disappears in the haulm in the region where the leafy angles appear. The circular, unwinged stem formation can be shown to be a result of growth in darkness. The tuberiferous stolons also contain a continuous primary endodermis; and can only be formed in darkness; tubers may appear in the axils of leaves in the light, but are not borne upon stolons. The formation of the tuber at the end of the stolon coincides with the disappearance of the endodermis and the appearance of cork in the epidermal or subepidermal layer. The increase of tissue in the tuber is due to the meristematic activity both in the cortex and in the periphery of the pith. Scattered phloem elements run in all directions through the parenchymatous tissues thus formed. Haberlandts' experiments show the importance of these phloem elements in the formation of wound cork by cut tubers.

Possible casual factors leading to tuber formation are: (1) Mycorrhizal infection as suggested in Bernard's theory of tuberisation. (2) Factors tending to prevent the formation of the Casparian strip of the primary endodermis, possibly operative in Vöchting's experiments on tuber formation. (3) The increase of sap concentration in the vascular strands of the stolon.

As a result of these considerations it is suggested that earthing up Potatos may be expected to increase the stem area from which tuberiferous stolons may arise, and that adequate moisture in spring, with consequent vigorous root pressure, may favour the formation of stolons, but that tubers may be expected to arise upon the stolons when the evaporation of water from the leaves is in excess of water supply from the roots.

A second paper was given by Messrs E. R. Speyer and O. Owen, on "The action of simple aromatic compounds on the Cucumber house woodhouse (Armadillidium speveri, Jackson)."

Preliminary experiments on the action of some hydrocarbons, phenols, nitrocompounds and a few terpenes on woodlice were described. Observations were made on the effects due to contact, vapour, and mixing with the soil at a concentration on M./100 in 250 gms. of soil. The organism of the animal is not affected in a similar manner by different compounds. P-cresol and p-nitrophenol are less active than the corresponding ortho compounds, and both nitrophenols are less active than phenol. One part phenol in 750 parts soil is sufficient to kill all woodlice introduced during a period of 20 days, and this time corresponds with the disappearance of retardation in germination of Tomato seeds sown in the same soil. Certain compounds show a maximum activity shortly before their disappearance from the soil. Phenol and the cresols were the most active compounds tested. Naphthalene disappears within four days of mixing with soil. Thymol, camphor, and hydroquinone act slowly in soil.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

A lecture on "Hardy Bulbous Plants" was delivered by Sir Herbert E. Maxwell, Bart., at the monthly meeting of this Society, held on the 28th ult. Mr. John Cairns presided.

The lecturer described true Lilies as a family of plants with which greater difficulties have been encountered and more frequent failure incurred than in any other kind of bulbous plant. It was a mournful fact, he said, that of the immense consignments of bulbs of the finer Asiatic species that reached this country every year, and the less abundant species imported from America, only a trifling percentage came to any good with us. They might flower once from nutriment stored within the bulb, but very few survived a second season. If only 5 per cent. of the Lily bulbs imported annually were to flourish and increase in this country, British gardens would by this time present a display in summer realising the dreams of the most sanguine amateur. A much larger percentage ought to survive provided (1) that better care should be applied to raising and packing the bulbs, and (2) that their wants on arrival should be better understood. For instance, L. auratum, the golden-rayed Lily of Japan, was capable of flourishing permanently under British conditions, as had been proved by instances that had come under his own observation. Unfortunately Japanese growers in their anxiety to take advantage of a profitable market had over-propagated this Lily and forced its cultivation on ground without rotation of crops. This probably accounted for the great majority of bulbs which arrived in this country being infected with a deadly fungus or by swarms of root mites. He thought it was high time that the leading horticultural societies such as theirs should take this matter up and urge on the Government the need for imposing restrictions on the importation of plants and roots calculated to carry disease.

The lecturer then gave the names and a few of the outstanding features of about a dozen varieties of the Lily family with which he said any amateur might deal with the best prospects of success. They are L. giganteum, L. monadelphum, L. testaceum, L. croceum, L. regale, L. Sargentiae, L. dauricum or umbellatum, L. Martagon, L. pyrenaicum, L. tigrinum, L. pardalinum, L. superbum, and L. chalcedonicum. These, he said, were Lilies with which the amateur might deal successfully. When he got these well established there were many others to which his attention might be turned.

On the motion of Sir John Reid, D.L., Sir Herbert was heartily thanked for his most interesting lecture.

At the close of the lecture a number of specimens of plants and flowers were exhibited, including several from the Glasgow Botanic Gardens. Special attention was directed to a hybrid raised in the Botanic Gardens in 1920. It is the result of crossing the British Meadow Saxifrage, S. granulata, with the well-known, dark flowered S. bathoniensis. A specimen of Columnea Banksii was also shown.

A Cultural Certificate was awarded to Mr. R. Benson, Paisley, for an exhibit of Narcissi grown in pots.

READING AND DISTRICT GARDENERS.

Mr. M. Goddard, Vice-Chairman, presided over a good attendance of the members at the recent fortnightly meeting of this Association. The subject for discussion was "Weather Forecasts," and the lecturer was Mr. R. J. Lloyd, University College Gardens, Shinfield. Mr. Lloyd dealt with his subject under various headings, including the movements of the atmosphere, fogs, mists, frosts, atmosphere pressures (high and low), clouds and their types, temperature, and gales.

In the competition for three vases of Daffodils, distinct varieties, Mr. F. Townsend, The Gardens, Hillside, was placed first, and Mr. H. Wynn, The Gardens, Querns House, Goring Heath, 2nd. For a vase of mixed blooms of Daffodils the first prize was awarded to Mr. E. J. Dore, Reading.

Mr. F. H. Pratten, The Elms, Shinfield Road, staged blooms of Violets.

The meeting was of special importance for the evening was set apart as "Hospital Night," and, as usual on these occasions, a magnificent lot of flowers were staged to be sent the next morning to the Royal Berkshire Hospital. A collection taken on behalf of the funds of the Institution amounted to £3 7s.

ROYAL HORTICULTURAL.

April 10 and 11.—Although Daffodils wer shown in such large numbers at Westminst as to give the interior of the R.H.S. Hall very attractive spring-like appearance, the was a greater variety of exhibits than previous meetings of the present year. Orchi were not so numerous as usual, but there we Roses, Alpines, Rhododendrons, forced floweri shrubs, Carnations, Anemones, and various earl spring flowers. The hall was well filled wi interesting exhibits, but novelties were few.

Orchid Committee.

Present:—Sir Jeremiah Colman, Bart. (in t chair), Messrs. Jas. O'Brien (hon. secretar Gurney Wilson (assistant secretary), C. Lucas, Arthur Dye, Henry H. Smith, H. Pitt, A. McBean, E. A. Ashton, W. J. Kay Richard G. Thwaites, Frederick J. Hanbury, Wilson Potter, Sir Frederick Moore, and t Hon. H. D. McLaren.

First Class Certificates.

Miltonioda Harwoodii Ashtead Park vari (*Miltonia vexillaria × Cochlioda Noezlian* from Pantia Ralli, Esq., Ashtead Park, Surr (Orchid grower, Mr. Farnes). The finest of favourite section which has yet appeared. T plant shown was an excellent example of go culture and carried a spike of fourteen flowe which have strong indication of Miltonia in t shape. The colour is magenta crimson, t broadly ovate lip lighter in tint.

Cattleya Dr. Miguel Lacroze var. Excels (*Octave Doin × Tityus*), from Messrs. Flo and Black, Slough. A true Cattleya and of the largest and best, excelling both pare in form and size. The flowers are over ei inches across, the petals broad and w arranged; both sepals and petals are colou rosy-mauve. The lip is broad and colou yellow in the centre, the yellow lines on purple ground running from the base. The fr is purplish crimson with a light mauve marg

Laelio-Cattleya Hassallii alba var. Perfect (*L.-C. Britannia alba × C. Warscewiczii M. Beyrodt*), from Messrs. Cowan, Southga The plant bore a two-flowered inflorescence, large and finely formed flowers being pure whi with deep Tyrian purple lip that has a yell disc and contrasts well with the pure wh of the other segments.

Awards of Merit.

Odontoglossum Aiglon var. Majestic (*eximium × Vuylstekeae*), from H. T. Pi Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgoo Odontoglossum Aglaon (C. Aiglon) was one the first startlingly fine Odontoglossums shown Mons. Vuylsteke, and which in its class was surpassed until the advent of Messrs. McBea Odm. Mirabeau var. Mastiff and Odm. Evere which the form of Odm. Aglaon now sho approaches. The large flowers are white, w close blotching and marking of deep cl purple colour.

Odontoglossum × Aureola (*parentage recorded*), from Pantia Ralli, Esq., Ashte Park, Surrey (Orchid grower, Mr. Farnes). fine, clear canary-yellow flower of the Odm. christiense section of Odm. harvengtense, large chestnut-red blotch, as in Odm. triumpha well indicating that species of parentage.

Laelio-Cattleya Faust (*Liminosa × Ernest* from E. R. Ashton, Esq., Broadlands, Tunbri Wells. A very pretty and distinct hybrid. T plant bore a spike of well-formed, orange-yell flowers, with maroon-crimson lip that has yellow disc.

Other Exhibits.

E. R. Ashton, Esq., Broadlands, Tunbri Wells (gr., Mr. Kent) was awarded a Silver F Medal for a pretty and well-arranged group fine hybrids, among which were the handso Odontioda Lady Patricia Ramsay (Odm. La beauianum × Oda. Coronation), with a gra spike of fifteen flowers; Oda. Schröderi Bro land's variety (Odm. crispum × Oda. Br shawiae), with a strong spike of dark sca lowers; a fine form of Brasso-Laelio-Cattleya Veitchii with very richly coloured lip; good pecimens of yellow Dendrobium Thwaitesiae and D. chessingtonense, and various pretty hybrids and species, the most attractive of which was a ine specimen of the scarlet Sophronitis grandiflora, with many flowers.

H. T. Pitt, Esq., showed his fine scarlet Odontioda Zarina in excellent form.

Mr. Chas. Gray, The Gardens, Compton House, Cobham, showed a pretty white Brasso-Cattleya of unrecorded parentage.

Lt.-Col. Sir Geo. L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander) again howed his fine chrome-yellow Laelio-Cattleya Orange Blossom (Elinor × Trimyra), for which a First-Class Certificate was awarded on April 5, 1921.

Floral Committee.

Present: Messrs. H. B. May (in the chair), C. Williams, G. Reuthe, John Heal, J. F. McLeod, G. Harrow, W. Howe, H. J. Jones, J. B. Riding, Donald Allan, Chas. E. Pearson, W. P. Thomson, C. R. Fielder, D. B. Crane, Chas. E. Shea, Thos. Stevenson, W. B. Gingell, J. Jennings, M. C. Allwood, H. D. McLaren, W. B. Cranfield, H. V. Warrender, Reginald Cory, W. J. Bean, Clarence Elliott, W. R. Dykes, R. W. Wallace and James Hudson.

NOVELTIES.

AWARD OF MERIT.

Rhododendron Exminster.—This fine hybrid is the result of crossing R. Thomsonii grandiflora with R. campylocarpum, and it shows the influence of both parents. The flowers are broadly campanulate in shape, and make up a loose truss. The colour is cream pink, heavily flushed with deep reddish pink. Shown by Messrs. **Robert Veitch and Son**, Exeter.

OTHER NOVELTIES.

Mrs. **Heyward Johnstone**, Bignor Park, Pulborough, sent flowering branches of several interesting Rhododendrons, notably R. campylocarpum × Prince Camille de Rohan and the handsome, flesh-tinted R. Dr. Stocker. Mr. G. **Reuthe** showed R. Yolande, a creamy white campanulate variety derived from R. campylocarpum and R. Aucklandii. A freely flowered branch of R. Thomsonii was shown from the **R.H.S. Gardens**, Wisley, and a truss of R. Delavayi, flowering for the first time, was exhibited by **Lionel de Rothschild**, Esq., Exbury, Southampton.

GROUPS.

Roses were staged in even greater beauty than a fortnight ago. The blooms generally were very highly coloured, and the fragrance of many varieties was pronounced and appreciated. Mr. **George Prince** included a splendid vase of the deliciously fragrant T variety, Muriel Wilson, and the creamy white blooms were of large size and very shapely. Padre, Madame Butterfly and the deep yellow Lady Hillingdon were also excellent in this exhibit.

In a fine collection arranged by Mr. **Elisha J. Hicks** there was a generous quantity of climbing Lady Hillingdon displaying a depth of colouring which approached orange-yellow in its intensity. There were many other desirable H. T. Roses on view and the Polyantha varieties included highly decorative vases of Coral Cluster and Edith Cavell.

At the far end of the hall Messrs. **B. R. Cant and Sons** staged beautiful blooms of such sorts as Padre, Phoebe, Esme and Rev. F. Page Roberts; the last-named variety was especially well coloured.

Rhododendrons were very prominent amongst the exhibits of trees and shrubs. Messrs. **R. Gill and Son** brought a goodly collection of somewhat tender varieties, and amongst their large-flowered hybrids there were trusses of Countess of Haddington, Princess Alice, Ciliicalyx and a charming little hybrid raised from R. campylocarpum and R. Thomsonii. They also showed large quantities of Myosotidium nobile, the uncommonly beautiful blue Norfolk Island Forget-Me-Not, Primula The Jewel, a greatly improved Primula Juliae, and gorgeous flowers of Anemone St. Brigid strain. Such Rhododendrons as R. campanulatum, R. campylocarpum, R. niveum and the small blue-flowered R. fastigiatum were prominent in a collection by Mr. G. **Reuthe**, who also showed various alpines.

Mrs. **Heywood Johnstone** (gr. Mr. J. R. Nightingale), Bignor Park, Pulborough, gave well-deserved prominence to many magnificent trusses of Rhododendron Falconeri and also staged many blooms of the deep pink R. leucumbeana and R. Dr. Stocker. Lt.-Col. **Messel** sent an unnamed collection of meritorious Rhododendrons, chiefly of arboreum seedlings.

Excellent plants of Rhododendron Fosteriana, R. Gibsoni superba, R. Princess Alice and R. Marchioness were shown by Mr. L. R. **Russell**, who filled a large floor space with forced shrubs. There were also many splendid varieties of Azalea indica, Mollis Azaleas and Clematis, and a bush of the uncommon Camellia cuspidata, a small-leaved variety, bearing plenty of small white flowers.

Floriferous Pyruses, Magnolias, Cherries, Wistarias and other shrubs were contributed by Messrs. **J. Cheal and Sons**. Messrs. **J. Piper and Sons** exhibited various Brooms, Japanese Maples, especially good blooms of Japanese Paeonies (Paeonia Moutan) in various colours, Pansies and a goodly batch of Primula pulverulenta.

Well-flowered bushes of Daphne Cneorum and Veronica Hulkeana were associated with blue-flowered Verbenas in the exhibit from the **Maytham Gardens**. Primula Mrs. J. Wilson, Gentiana Clusii and the large yellow Meconopsis integrifolia were well shown by Messrs. **R. Tucker and Sons**. The Misses **Hopkins** had a pretty little garden with a pool and many spring flowers. Violas were prominently shown by Messrs. **Carter Page and Co.**, who also had many alpines, including Edraianthus perpylliflorus, and also Iris bucharica.

Gentiana verna of intense blue colour was conspicuous in a small collection of alpines arranged by Mr. **Clarence Elliott**. There were several interesting varieties of Mesembryanthemum in an exhibit by Messrs. **Maxwell and Beale**, while Messrs. **W. H. Rogers and Son** had a beautiful patch of Lithospermum Heavenly Blue, Dianthus multiflorum and Rhododendron ciliatum in quantity.

In a rockery Messrs. **J. Cheal and Sons** displayed Anchusa myosotidiflora and Aubrietias of several sorts. Messrs. **Barr and Sons** had the gorgeous scarlet Tulipa praestans and a large rose-coloured variety of T. Kaufmanniana named Brilliant. Excellent St. Brigid Anemones were staged by Messrs. **Reamsbottom and Co.** Cheiranthus Allionii was prominently shown by Mr. G. G. **Whitelegg**, who also had various Saxifrages, Lychnis alpina and Conifers suitable for rock gardens. There was a large basket of the showy Caltha palustris fl. pl. in a display made by Messrs. **B. Ladhams, Ltd.**, who also had Omphalodes cappadocica. Mr. G. W. **Miller** again brought his excellent Polyanthuses Messrs **J. and A. H. Crook** also had a good strain of Polyanthuses, the bronze strain being exceedingly good. Messrs. **G. Bunyard and Co.** showed a collection of alpines.

Excellent Polyanthuses were staged by the **Chalk Hills Nursery Co.**, who also displayed various alpines and Auriculas of merit Messrs. **Waterer, Sons and Crisp** included plants of Iris pumila coerulea. I. bucharica, Erythroniums, Dodecatheon and Primulas in an interesting exhibit. There were several excellent varieties of Aubrietias, amongst Primulas, Drabas, Houstonias and other alpines, in an exhibit by Mr. M. **Prichard**. Mr. **Fred G. Wood** staged such seasonable flowers as Alpine Auriculas and Polyanthuses.

Zonal Pelargoniums are not nearly so often shown as formerly, so the collection displayed by Messrs. **Jarman and Co.** was welcome, as it amply illustrated the value of these plants. Amongst the many good single-flowered varieties were Bombay and Good Friday, a beautiful blush pink. Doubles were also well shown

A splendid collection of Auriculas was staged by Mr. J. **Douglas**, who represented many of the best of the Fancy and the alpine varieties. Of the former Adonis and Grey Eagle were prominent, while the alpines included Argus and Admiration; there also were some splendid seedlings of both types.

Carnations were shown in considerable numbers and of the high quality that has been so consistent of late. Messrs. **Allwood Bros.** had beautiful vases of such sorts as Mary Allwood, Charity and Edward Allwood. Prominent in the collection arranged by Mr. C. **Engelmann** were White Wonder, Peerless, Lady Northcliffe and Improved Ward. Messrs. **Stuart Low and Co.** again had large vases of their novelties, with standard varieties, and also showed very good Hippeastrums, Cyclamens, Hydrangeas and Acacias.

Narcissus Committee.

Present: Mr. E. A. Bowles (in the chair), Mrs. Brodie, Sir Daniel Hall, Messrs. G. W. Leak, J. Duncan Pearson, Arthur R. Goodwin, G. Reuthe, H. V. Warrender, Rollo Meyer, G. Churcher, J. W. Jones, J. P. Arkwright, W. F. M. Copeland, W. Poupart, C. W. Needham, P. R. Barr, Herbert Smith, W. B. Cranfield, and Charles H. Curtis (hon. secretary).

Following the opening proceedings, the first business of this Committee was to vote for the award of the Peter Barr Memorial Cup; this is held for one year, and it was awarded unanimously to Mr. C. H. Curtis, the hon. secretary, who has rendered service in many ways, over a period of twenty-one years, on behalf of the Daffodil.

AWARDS OF MERIT.

Narcissus Puritan Maiden.—A dainty white trumpet Daffodil, but approximating closely to a great Leedsii. The trumpet is beautifully formed, cream coloured, and with a frilled, slightly recurring rim; perianth white. Shown by Messrs. **J. R. Pearson and Sons**, who are also the raisers.

Narcissus (*unnamed*).—This large trumpet variety has a pale cream yellow-frilled trumpet and white perianth. It is a strong grower, and the blooms are of good substance. The award was given subject to a name being supplied for the variety. Shown by Capt **Burton**, Titchfield, Hampshire.

PRELIMINARY COMMENDATION.

Narcissus Scarlet Perfection.—A gorgeously beautiful broad-cupped Barrii variety, with sulphur-yellow perianth segments of great breadth and substance. The cup or dish is rich, vivid, orange scarlet, and finely frilled at the margin. Shown by Messrs. **R. H. Bath, Ltd.**

GROUPS.

Daffodils were a fine feature of the exhibition, and Messrs. **Barr and Sons** had the finest of many excellent displays. This firm showed a large number of types and varieties, but the public fancy was arrested chiefly by their splendid blooms of the golden yellow trumpet sorts, Glory of Haarlem, Fantin Latour, Mustapha, Royal Gold and Warwick. Pale-coloured trumpet varieties were also finely represented by Tamora and Silver Gift, while there were beautiful blooms of Croesus, Great Warley, The Czar, and Dubloon (Gold Medal).

Messrs. **J. R. Pearson and Sons** contributed a beautiful group in which light-coloured Daffodils held a prominent place; the blooms were very clean and of excellent quality, especially those of Countess of Northesk, Florence Pearson, Beersheba, Seagull, Sanctity, and Mrs. R. Sydenham (Silver-Gilt Banksian Medal). Messrs. **R. H. Bath, Ltd.**, showed numerous exquisite flowers, very many of them being under number, but among named sorts in this fine collection we noted the new Scarlet Perfection, Sarabando, Fishtail, Cleopatra and Marie Hall (Silver-Gilt Banksian Medal).

A very large group was exhibited by the **Donard Nursery Co.**, and, considering the distance they had travelled the flowers were very clean and fresh, but the arrangement was scarcely so good as usual. Leading varieties of special merit were Joan of Arc, Irish Girl, White Slave, Lord Kitchener, Fortune, Mace-bearer, Lady M. Boscawen and Eglinton (Silver-Gilt Flora Medal). Messrs. Sutton and Sons contributed a large decorative display of Daffodils with a central group of coloured Freesias. The exhibit included pillars of the bold Daffodils Olympia, Phantasy, Neron, King Alfred and Van Waveren's Giant, with bowls of popular smaller-flowered sorts in front and vases of selected kinds of various types in between (Silver-Gilt Banksian Medal). Mr. W. F. M. Copeland was also an exhibitor of Daffodils, and among many good things he showed his fine double variety Mary Copeland (Silver Banksian Medal). A similar award was made to Messrs. Cartwright and Goodwin for a corner group of useful varieties shown in good form.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (chairman), J. Cheal, H. S. Rivers, W. J. Jefferies, S. B. Dicks, W. F. Giles, F. Treseder, G. Reynolds, Geo. F. Tinley, A. Bullock, Ed. Beckett, J. C. Allgrove, W. Bates, W. G. Lobjoit, W. Divers, W. Poupart, T. Pateman, E. Neal, H. Prince, A. Metcalfe, J. Wilson, E. A. Bunyard, Ed. Harriss, and A. N. Rawes.

Two varieties of Rhubarb were brought from the Wisley Gardens, the one a large, highly crimson variety named Hancock's Early Crimson Grooveless, the other Appleton's Red, a variety of small size, but of excellent flavour. These two Rhubarbs have been grown under trial at Wisley, but the Committee did not consider either as worthy of an award.

Mr. P. C. M. Veitch sent from the Royal Nurseries, Exeter, a dish of Apples labelled Newtown Pippin, but which were recognised by the chairman as the one known in America as Oregon Pippin. The fruits are not so round and smooth as those of the true Newtown Pippin, but are more conical, with prominent ridges around the eye, as in London Pippin. The flavour was good for a dessert Apple so late in the season.

Obituary.

James S. Turner.—We very deeply regret to record the untimely death of Mr. James S. Turner, manager of the bulb department of Messrs. Geo. Monro, Ltd., in whose service he had been employed for over twenty years. He was assisting in the flower department on Good Friday afternoon, when he was suddenly taken ill; three hours later he was operated on for appendicitis, and, although he survived the operation, a collapse followed and he passed away early on the 6th inst. Mr. Turner was educated at the Merchant Taylors' School, and was particularly well acquainted with British, Dutch, French, and South African bulbous plants.

TRADE NOTES.

Readers who are familiar with the High Road, Chiswick, will know there is a large outdoor market there. They will be interested to learn that Mr. Cooper, of 18, Savoy Street, W.C., has recently purchased a site and proposes to erect thereon a substantial fire-proof market building 350 feet long, and about 60 feet wide, which will accommodate about one hundred and twenty shops and stalls. A number of the open air traders at Chiswick are florists, fruiterers, and greengrocers.

The making of nets and netting of every description has been found a very suitable industry for the blind inmates of St. Dunstan's. Every net is made entirely by hand of the very best materials obtainable, and they comprise almost every description of nets for sportsmen, farmers and gardeners. Special terms are quoted to trade buyers and cricket and tennis clubs, and all details will be gladly sent on receipt of a card addressed to The Netting Room, Headquarters of St. Dunstan's Work, Inner Circle, Regent's Park.

The United Brassfounders and Engineers, Ltd., makers of the Ubel spraying and lime-washing machines, have issued an interesting little booklet illustrating many types of their machines, with a variety of nozzles and accessories. The address given in this booklet is Holloway Head, Birmingham, where, we understand, Ubel machines are now made since the firm has closed down its Manchester works.

The proprietors of the Cross Bone Manures are forming their business into a company, and are inviting offers of capital. The founder of the business is taking up 12,500 shares, and will act as managing director. The issue to the public is in shares of the denomination of £1, and these are intended to attract the small as well as the large investor. We understand that in allotting the shares, in the event of the issue being over-subscribed, preference will be given to customers of the firm, however small the number of shares they desire to take up. The total capital of the company is to be £50,000, of which £22,500 is offered to the public.

THE WEATHER.

THE WEATHER FOR MARCH.

After the first week, and until the night of the 30th of March, the weather was generally very dry, and the winds almost continuously of an easterly type. Wind-force was proportionally light. The mildness of the past winter, however, continued, and during the daytime hours, after the middle of the month, the temperature became quite high, and from the 25th to the 27th unusually so. Sunshine was normal, but there was a striking deficiency of ozone. The mean temperature equalled 44.7°, or 3.3° above the average. Sunshine duration amounted to practically the Southport March normal of 118 hours. Rain fell on 13 days, or two fewer than the average, and the total quantity was only 1.38 inch, implying a deficiency of 0.92 inch. Winds from the eastward prevailed during no fewer than 231 hours, the normal duration being exceeded by 152 hours; compounds of east added a further 200 hours. The mean velocity fell short of the average, in consequence, by 86 miles per day; and evaporation was quite moderate. Ground-frost was registered on nine nights, but the freezing-point was never reached in the shade; no gales occurred; hail was reported twice. Fog prevailed on the night of the 4th to 5th. A little lightning and thunder were experienced on the evening of the 28th. *Joseph Baxendell, The Fernley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

With the exception of its sunshine record, March was a well-behaved month—for March. There was an entire absence of the usual bluster, the winds being remarkably light, the mean temperature was one and a half degrees above the normal, while the rainfall was meagre, with the infrequent phenomenon of a drought lasting from the 13th to the 26th inclusive. On the first ten days of the month it rained every day, but the total yield for that period was only 0.72 inch, while for the whole month the yield was 1.36 inch for 14 days, against a normal of 3.20 inches for 17 days. Almost one-third of the total was recorded for the 31st—the wettest day. Bright sunshine was registered to an aggregate of 81.2 hours; this gives a daily average of 2.6 hours and a percentage of 22—a rather low percentage for March; there were 9 sunless days. The mean temperature was 41.5°, with a mean maximum of 47.0° and a mean minimum of 36°. The highest maximum was 56° on the 29th, and the lowest minimum 30° on the 19th. On only two nights did the screen temperature fall as low as the freezing-point. On the grass, with a mean of 34°, the lowest minimum recorded was 28°—this on 4 nights—the only nights of ground frost. The forward march of the season was well shown in the steady rise of the soil temperature at 1 ft. deep. By fairly regular increments it advanced from 40° on the first to 45° on the 31st. The wind was variable in directions and always light. *John Davidson, Director of Studies, Meteorological Station of the St. Andrews Provincial Committee at the Training College Gardens, Mayfield, Dundee.*

GARDENING APPOINTMENT.

Mr. G. Woolley, for nearly four years Gardener to H. Dixon Kimber, Esq., Hitcham Place, Taplow, Buckinghamshire, as Gardener to J. G. Murray, Esq., Wrest Park, Ampthill, Bedfordshire.

Mr. John Anderson, for the past two years Gardener to Sir Henry Lawson, Bt., Brough Hall, Catterick, as Gardener to W. Gordon Black, Esq., The Priory, Kirkcaldy, Fifeshire, N.B., in succession to his father, who has retired after 37 years' service.

CATALOGUES RECEIVED.

C. E. West, Higham Hill, E.14.—Garden Sundries.
J. Cheal & Sons, Ltd., The Nurseries, Crawley.—Dahlias.

ANSWERS TO CORRESPONDENTS.

A New Geranium: *W. W., Berks.* The best way of bringing your new Pelargonium to the notice of the public is to enter it for award at one of the Royal Horticultural Society's fortnightly meetings. Wait until you have a good specimen or two in flower, and pack them carefully, addressed to the Secretary, Royal Horticultural Society, Vincent Square, Westminster, to be entered before the Floral Committee. It is essential that the variety should have a name before you submit it for an award. The only method of protecting your rights in the plant is to ensure that no one has any of the stock until you dispose of it. There are no patent rights in plants.

Asparagus Sprengeri Discoloured: *H. S.* We have examined the spray of Asparagus Sprengeri and find no fungous disease present, nor could we find any insect pests, but the damage done suggests that the discolouring is due to the action of thrips, the remedy for which is syringing and fumigating.

Correction.—Mrs. Heywood Johnstone draws our attention to errors made by our reporter in his notice of the Rhododendrons she exhibited at the meeting of the Royal Horticultural Society, on March 27. "Bigley Park" should read Bignor Park, and "Haywood" Johnstone, Heywood Johnstone.

Cucumbers Diseased: *Cloe.* The plants are attacked by wilt, caused by the fungus Verticillium. All diseased plants should be destroyed by burning. It would be advisable to utilise another house for succeeding crops of Cucumbers this season; remove all the soil from the house in which the diseased plants were grown, and bury it in some out-of-the-way part of the garden.

Lettuce Plants Diseased: *W. W. F.* The mycelium of a fungus is present in the crown of the plants; specimens that are affected with the disease should be destroyed by burning.

Names of Fruit: *O. F. F., Oxford.* 1, Ross Nonpareil; 2, Newton Wonder; 3, Margil; 4, Minchull Crab; 5, Lane's Prince Albert; 6, Cox's Orange Pippin; 7, Bramley's Seedling; 8, Lord Derby; 9, Baumann's Reinette; 10, Allington Pippin; 11, Dutch Mignonne; 12, not recognised; 13, Fearn's Pippin; 14, Cockle Pippin; 15, Ashmead's Kernel. *J. S.* Golden Harvey (syn. Brandy Apple). *W. M. B.* 1, Hoary Morning; 2, Winter Strawberry; 3, Small's Admirable.

Name of Plant: *H. B. S.* Cornus Mas (Cornelian Cherry). *F. R.* Pinus Pinaster (Cluster Pine). *W. W. C.* 1, Cotoneaster microphylla; 2, Olearia Haastii; 3, Ligustrum lucidum; 4, Pyracantha Lalandei; 5, Euonymus europaeus.

Pentstemons Unhealthy: *A. L.* The Pentstemons are affected with the fungus Botrytis, a common disease of cultivated plants. Diseased stocks should be burned and cuttings for propagation obtained from a fresh source.

Red Bricks for Garden Paths: *A. S. P.* The following firms supply red bricks suitable for garden paths, but you should obtain a guarantee that the bricks would not flake off during frost: The Haunchwood Brick and Tile Co., Nuneaton; The Hathern Station Brick and Terra Cotta Co., Loughborough; Mr. J. C. Edwards, Ruabon; Messrs. S. and E. Collier, Reading; The Cattybrook Co., 15, Clare Street, Bristol; Messrs. Candy and Co., Newton Abbott; Messrs. Watson, Nelson and Co., Ltd., Napton, nr. Rugby; and the Bromyard Tileries, Ltd., Broad Street, Bromyard, Hereford.

Communications Received.—R. T. C.—J. G. J.—E. K.—A. M.—D. R.—W. B. (thanks for 2s. 6d. for R.G.O.F. Box.)

THE
Gardeners' Chronicle
No. 1895.—*SATURDAY, APRIL* 21, 1923.

CONTENTS.

Association of Economic Biologists 208
Ceanothus rigidus .. 208
Chrysanthemums, late-flowering 220
Covent Garden, strike at 208
Florists' flowers—
  Carnations in the flower garden 209
Flower border, hardy—
  Ranunculus 209
Fruit register—
  Apple Tompkin's King 212
"Gardeners' Chronicle" seventy-five years ago 208
Garden League for devastated France .. 208
Ghent International Exhibition .. 207, 216
Gibbon's garden at Hampton Court .. 214
Gladiolus show, an international 208
Henry, Prof. A., honour for 207
Hop growers, payment to 208
Nursery note—
  A London Florist's nursery 213
Obituary—
  Russell, James .. 222
  Welsh, Alex. .. 222
Orchid notes and gleanings—
  Cattleya Delphin .. 213
  Cymbidium Merlin Westonbirt variety 213
  Laelio-Cattleya Gwendolen Leach .. 213
  Odontoglossum Amillus Gerrish's variety 213
Pears 208
Pears and Apples in the south of England, approximate average order of blossoming of market varieties of 212
Polyanthuses, in praise of 207
Royal Gardeners' Orphan Fund 207
Societies—
  United Hort., Ben. and Provident 221
  Ghent Quinquennial 216
  London Daffodil .. 220
  Royal Caledonian .. 221
  British Mycological .. 221
Thomas, Mr. Owen .. 207
Trees and shrubs—
  Linum arboreum .. 209
Vegetable garden— .. 212
Victoria, settlement scheme for 207
Ward's, Mr. Kingdon, seventh expedition in Asia 211
Week's work, the .. 210
Worms, climbing .. 212

ILLUSTRATIONS.

Azalea Albert-Elizabeth, adjudged the best new plant at the Ghent show 211
Cymbidium Merlin Westonbirt variety 213
Ghent Show: plan of the British section, 217; the King and Queen of the Belgians at the opening ceremony, 216: views of the 215
Lambourne, the Rt. Hon. Lord, portrait of 208
Linum arboreum, a fine clump of 209
Sander Memorial cup offered for the best new plant at the Ghent show 210

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 46.4°.

Actual Temperature :—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 18, 10 a.m. Bar. 30, temp. 49°. Weather—Dull.

Ghent Quinquennial International Exhibition.

In the year 1908, the Société Royale d'Agriculture et de Botanique de Gand celebrated its centenary by holding a horticultural exhibition on a scale never previously attempted, and those who were privileged to take part in it will never forget the brilliant scene at Ghent or the functions connected with the celebration, for Belgian horticulturists are as hospitable as they are skilful and enterprising. The exhibition held in 1913 was also a great success; then came the war, under which Belgium suffered greatly and nobly. It was, of course, impossible to hold a show in 1918, when the next one was due. From small beginnings at the Frascati Inn in 1809, the Ghent Society has progressed amazingly, and indeed it is not the only horticultural society which had its beginnings in the desire of a few friends to gather at an inn for the purpose of comparing their flowers and plants. Evidently there had been such meetings at the Frascati Inn for many years previously, as we may gather from the fact that there were sufficient enthusiasts to establish the Society in 1809, after Franz van Cassell had told them of the new plants he had seen in England. We may therefore take no little pride in the progress of the Ghent Society, inasmuch as our British activities inspired certain good Belgian gardeners to create it for the furtherance of horticulture in Ghent. The exhibition of 1923, described and illustrated in the present issue, and opened by His Majesty the King of the Belgians on Saturday, April 14th, continues until April 21st. It is of special interest as indicating the revival of horticultural activities in Belgium; it is also unique in that for the first time a Ghent show has included a section filled entirely with British productions and arranged under the auspices of the Chamber of Horticulture and the Royal Horticultural Society. Another feature which marks the present function is the re-dedication of the memorial to the late Comte Oswalde Kerchove de Denterghem, who was for a long period the President and moving spirit of the Floralies Gantoises. The original memorial was removed by the Germans during their occupation of the city. A special interest also attaches to the 1923 exhibition, inasmuch as the Fédération Horticole Internationale Professionale held its conference at Ghent during the opening days of the show, consequently the International Conference and the Floralies Gantoises brought together a large number of eminent horticulturists from many lands. The exhibition of 1923—the eighteenth of the International Quinquennial series, and the hundred and seventy-third exhibition of the Ghent Society—compares favourably with its predecessors of the past thirty years. In addition to occupying two huge buildings at the Palais des Floralies, very large numbers of exhibits are accommodated in the surrounding grounds. In brilliance and effect it is no whit behind those we have previously attended, and in its general arrangement it is an object lesson for those who have to organise great horticultural displays. In former years new plants were a feature of special interest at Ghent, but in this matter the present exhibition falls somewhat short of those previously held. Azaleas were exhibited in large numbers, and were the central feature of the big exhibition building where the colours of their flowers presented a picture of dazzling brilliance. Here and there, perhaps, the association of colours left much to be desired, but the general arrangement in large groups set in grass and surrounded by an abundance of foliage plants made up a garden scene not soon to be forgotten. Orchids were exhibited freely and finely, and probably at no previous Ghent show have these aristocrats of the floral world occupied so much space or created such a rich and graceful picture in the various salons. Sir Jeremiah Colman's exhibit, from Gatton Park, Reigate, was much appreciated, as it is no small business for an amateur to take a large collection of valuable plants so far from home; but he had his reward in the congratulations of his own countrymen and the admiration of others. Stove plants, Palms, Cycads, Caladiums, giant Ferns and others were used with splendid effect in various parts of the exhibition, but these were not represented so extensively as on former occasions, and it was obvious that war-time conditions had reduced many collections. It is difficult to convey an adequate idea of the extent and brilliance of this international exhibition, but it is a matter for pride that British horticulture was admirably represented and the British section was a fine example of elegance in design and arrangement. His Majesty the King of the Belgians paid an early visit to this section on Saturday, April 14. He made a tour of the exhibits with Mr. J. S. Brunton as guide, spoke to most of the British exhibitors and graciously referred to *The Gardeners' Chronicle* as a "most important paper." Concerning the outings, entertainments and hospitality offered to the members of the Jury and delegates to the Conference, we refer our readers to our report, which, we trust, will convey a fair idea of the extent, importance and beauty of the great Ghent Show of 1923.

Royal Gardeners' Orphan Fund.—The thirteenth annual dinner in aid of the Royal Gardeners' Orphan Fund will take place at the Hotel Victoria, Northumberland Avenue, W.C., on Friday, May 18, under the chairmanship of Mr. George Monro.

Mr. Owen Thomas.—The many friends of Mr. Owen Thomas will learn with regret that he is seriously ill with pneumonia. We trust that his robust physique may enable him quickly to recover and that horticulturists may soon see him hale and hearty, engaged again in manifold good works as of yore; for surely no gardener has shown more public spirit, nor disinterested solicitude for horticulture than has Mr. Owen Thomas.

Settlement Scheme for Victoria.—An agreement under the Empire Settlement Act has been signed by representatives of the Overseas Settlement Committee and an Australian State. The scheme makes arrangements for the settling of 10,000 new migrants from the United Kingdom, and their dependents, on 10,000 farms, to be provided within the state of Victoria, on Crown lands, or on lands resumed for subdivision. It is hoped to make arrangements immediately for the settlement of 2,000 of these migrants at an estimated cost of £3,000,000. Financial assistance will be given by the Victorian Government to settlers to enable them to purchase farming equipment and stock. An advance will also be made against improvements on their farms, such as houses and farm buildings. The total indebtedness of a settler, both for land and for advances made by the Victorian Government, must not exceed £1,500. The land is to be paid for at the rate of 6 per cent. per annum on the capital value. This 6 per cent. will wipe out the capital cost and interest in 36½ years. It is expected, however, that the great majority of the settlers will become sufficiently prosperous to pay off their farms in a much shorter period.

Honour for Prof. A. Henry.—The National Acclimatation Society for France conferred, on March 18, its large silver medal on Prof. Augustine Henry, of the College of Science, Dublin, in recognition of his services to horticulture and forestry. Prof. Henry's explorations of the flora of China, some twenty to thirty years ago, resulted in the discovery of about 1,000 species of plants new to science, many of which are now in cultivation in our gardens. Prof. Henry's researches into the artificial production of vigorous trees by hybridisation are also well-known, and one of these new hybrids, Populus generosa, has already proved its value for planting by its astonishing growth, some of the specimens being 35 feet high at the age of seven years. His introductions of trees include the Western Larch from Montana, U.S.A., and the geographical races of the European Larch, which occur wild in Poland and in the Tatra Mountains of Slovakia.

In Praise of Polyanthuses.—In seasons such as the present one, when winter wet makes Wallflowers in any but the most sheltered spots grow weedily, and the rain and winds combined prove too much for the continued endurance of Daffodils, the garden is made bright by the sturdy refusal of Polyanthuses to reflect the gloom of the skies. With the least touch of sun and regardless of rain and wet ground, they flower bravely. One of the most beautiful garden pictures may be made by planting among shrubs in sight of the house strains of yellow, gold and white Polyanthuses. Although many may prefer the coppery, purple and other rich hues, the yellow and golden colours seem more suitable for spring, and brighten more than do the latter the sombreness of dull spring days;

even giving a faint hope that the incessant rain shall sometime cease. With them Forget-me-Nots blend very harmoniously, and large white double Daisies growing in the path make, though each be a common plant enough, one of the most beautiful corners in the early spring garden.

Payment to Hop Growers.—Hop growers are to receive a further payment on account of their last year's crop, on April 27. The Hop Controller proposes to pay an inclusive sum of £5 per pocket. Growers have already received up to eighty per cent. of the full value of their crop. Thus, in the case of Hops valued at £10 per hundredweight, there will be a sum of only £2 per hundredweight outstanding.

Sad Death of a Gardener.—Mr. George Harrington, gardener for over thirty years at St. Paul's School, was knocked down by a motor-car in the Hammersmith Road and killed. The inquest was held at Hammersmith on Monday last, and a verdict of accidental death was recorded.

Pears.—It looks as though an unhappy aftermath of last year's cheerless summer will appear in a very poor Pear crop. In a "cordon walk" consisting of about fifty trees, of which half are Apples and half Pears, though the former show promise of plenty of blossom, there are not more than a dozen flower trusses showing on the Pears. Similar scarcity of Pear blossom may be seen in many gardens, and those who want to make the most of such blossom as there is, will do well to pollinate the flowers of trained trees artificially. Although paucity of Pear blossom seems to be the general rule, here and there in gardens are to be found occasional trees with profusion of blossom.

Association of Economic Biologists.—A general meeting of the Association of Economic Biologists will be held at 2.30 p.m. on Friday, April 27, in the Botanical Lecture Theatre of the Imperial College of Science, Prince Consort Road, South Kensington, London, S.W.7, when Dr. C. M. Wenyon, C.M.G., C.B.E., will read a paper on "Some Recent Observations on Pathogenic Protozoa of Plants and Animals."

Reduction in the Postal Rates.—The reduction in the postal rates announced by the Chancellor of the Exchequer will be welcomed by traders, especially those with large mail order businesses. A saving of 33 1/3 per cent. will be effected on carriage rates for parcels under 2 lb. The alteration in the letter rate of 2 oz. for 1½d. instead of 1 oz. for 1½d. should also prove a valuable stimulus to trade, as will also the reduction in the inland printed paper rate, which will especially benefit those who distribute catalogues extensively.

Ceanothus rigidus.—In despite of the inclement spring, this shrub is flowering particularly well just now, and its deep blue-violet inflorescences give a shade of colour which is both rare and pleasing in the garden. Too tender to be grown in the open in most parts of England, it nevertheless flourishes exceedingly under the shelter of a wall. Those who wish to grow it should take care to obtain the true species, which is characterised by opposite, wedge-shaped, coarsely-toothed leaves, decurved at the apex, and by flowers—deep purplish blue, according to Bean (*Trees and Shrubs Hardy in the British Isles*), but in the plants which occasioned this note, better described as deep blue-violet.

Garden League for Devastated France.—A British Committee of The Garden League for Devastated France has recently been formed under the Presidence of Honour of His Excellency the French Ambassador, Monsieur le Comte de Saint-Aulaire. The League, which is known in France as L'Œuvre du "Jardin de la France Dévastée," exists for furthering friendly relations between France and England through the material expression of its work in the restoration of fruit and vegetable cultivation of garden ground all over the devastated area. At a meeting held recently at Mortimer Hall, His Excellency the French Ambassador, who was accompanied by Madame de Saint-Aulaire, paid an eloquent tribute to the work. He warmly congratulated the League on its successful organisation in the devastated regions, and upon the link formed by the adoption system between the school gardens of Britain and those it was restoring in devastated France. A resolution proposed by Sir John Miller and seconded by Lady (Capel) Wolseley, was passed unanimously, commending the League to public sympathy and support. The Hon. Organising Secretary is Miss Helen Colt, 31, Upper Berkeley Street, London.

Guelph International Gladiolus Show.—An International Gladiolus Show will be held at Guelph, Ontario, on August 22 and 23 next. The Ontario Government is providing trial plots for the planting of Gladioli sent for the purpose of the exhibition, in lots of 100 or less from any one grower. The corms will be grown by competent horticulturists attached to the Ontario Agricultural College. Growers and hybridisers of the Gladiolus in this country who desire to exhibit their products are invited to send the required number of corms so as to reach Guelph not later than May 24. Consignments should be addressed to Mr. J. E. Carter, Chairman, The Plot Committee, Horticultural Society, Guelph, Ontario.

LORD LAMBOURNE, PRESIDENT GENERAL OF THE JURY OF THE GHENT EXHIBITION (SEE P. 216).

Leaf-Spot of Pelargonium.—Growers of Pelargoniums are often troubled with a mysterious complaint in their plants, resulting in spotting of the leaves. The late Dr. Cooke, in *Fungoid Pests of Cultivated Plants*, referring to Geranium leaf-spot, states: "We have often seen Pelargonium leaves having large and confluent discoloured and decayed spots, without any evidence of the presence of fungi, but the spotting has been attributed to sour soil, from which the plants have recovered after a good cleansing of the roots and transplanting in good soil." Miss Nellie A. Brown, pathologist in the Laboratory of Plant Pathology, United States Department of Agriculture, has published a paper* in which the spotting is attributed to a bacterium, Bacterium pelargonii. The organism is said to be unlike the one described by Lewis as Bacterium erodii, which also causes leaf-spotting. The author states that the organisms seem to be harboured in the soil, and this may be the reason why the plants referred to by Cooke recovered after they had received a good cleansing of the roots and were transplanted in fresh soil. The disease is said to be favoured by warm, moist conditions and insufficient ventilation; the author states that care in regulating the temperature, ventilation, and moisture conditions in the greenhouse, and in allowing plenty of space between the plants will go far towards preventing the appearance of the disease and towards curing it when it is present. She further recommends that all spotted leaves should be removed and destroyed, and states that the disease is not a serious one, unless the physical condition of the plant is weakened by too rapid development, caused by growing it in an excessively moist, warm atmosphere, with insufficient air circulating in the house. Miss Brown also points to the need of great care in watering Pelargoniums; she found in the case of affected plants that, when the spotted leaves were picked off and the plants placed well apart, allowed plenty of air, and watered with great care, the disease disappeared entirely by the end of three weeks and did not return.

Local Horticultural Societies.—Norton, Malton and District Chrysanthemum Society enjoyed a very successful year in 1922, and the annual report of the committee states that the show of 1922 was one of the most successful in the history of the society, the number of entries constituting a record. The date of the annual show this year has been provisionally fixed for November 15.

Strike at Covent Garden.—A complete stoppage of work occurred in the Floral Hall, Covent Garden Market, on Friday morning, the 13th inst., as a result of a ticket inspection by the Transport and General Workers' Union. It was discovered that one man was not a member of the Union, and in consequence all the Union men struck work. The trouble, however, was short-lived, for after one and a half hour, the non-union man joined the Union and work was then resumed as usual.

Appointments for the Ensuing Week.—Tuesday, April 24: Royal Horticultural Society's Committees meet in conjunction with the National Auricula and Primula Society's Show (two days). Wednesday, April 25: Lincolnshire Daffodil Society's Show. Thursday, April 26: Mitcham, Tooting and District Horticultural Society's meeting; Royal Botanic Society's meeting. Friday, April 27: Association of Economic Biologists meet.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Disbudding.* In the case of several of our cultivated fruit trees, experience has abundantly proved that the removal of shoots at an early stage of their growth (which from the adoption of a system of training, or a tendency in the tree to excessive luxuriance, are deemed superfluous) is both advantageous to the health of the tree and favourable to the production of handsome fruit. Pruning may effect the result desired, but it is a violent remedy, although necessary in some degree. Disbudding, properly speaking, is the art of preventing the development of useless buds at the expense of those which should be preserved, as it must be more advantageous to check an unnecessary shoot at an early stage than to wait until it has exhausted the tree of a greater or less quantity of sap; as it is probable that a proportion of roots is directly connected with vigorous shoots, it follows that derangement in the distribution of the sap ensues from their removal at the period of their full development. It is, then, generally advisable not to wait until a badly placed shoot is developed, but to suppress it early. With Apples and Pears, peculiar judgment and discrimination are necessary; stopping should systematically be practised. The excess of shoots produced by Peach trees invites the practice we recommend. The same attention should be directed to Vines. In our flower gardens much unnecessary growth may be prevented. Roses, for example, if judiciously disbudded, not only bloom better, but form finer and more vigorous plants. In fine, we advise a daily inspection of the sort of trees we have alluded to. *Gard. Chron., April* 15, 1848.

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* "Bacterial Leaf-spot of Geranium in the Eastern United States." By Nellie A. Brown. Reprinted from *Journal of Agricultural Research.* Vol. XXIII., No. 5. Government Printing Office, Washington.

FLORISTS' FLOWERS.

CARNATIONS IN THE FLOWER GARDEN.

There is a special charm about Carnations, and their importance in the flower garden needs no emphasising, especially now that raisers, with the aid of the perpetual-flowering type, have been successful in lengthening the period over which their flowering is extended. None of these modern sorts, however, exactly takes the place of the original border Carnations.

With other types so much in evidence, recognition of what recently has, and is being, accomplished amongst true border Carnations is in danger of being overlooked. There is, however, abundant proof that many varieties show marked advance in stoutness of stem and calyx, with a corresponding increase in fulness of the flower, whilst fragrance, an invaluable asset, is not being neglected. In this respect the Bookham Cloves may be instanced.

All the leading colours are now represented n this type, and are given in most cases as a prefix to the variety, viz., Salmon Clove, White Clove, Rose Clove, and so on, and so far as at present can be ascertained, the plants have all the vigour and hardiness of the best border varieties.

Other noteworthy self-coloured varieties include Border Yellow, Fujiyama, scarlet; Miss Wilmot, coral pink; Mrs. Robert Gordon, salmon pink; Peach Blossom, pale rose; the Grey Douglas, a lovely variety, and Purity. There are numerous others, not to mention the Fancies and Picotees, which not even the best perpetuals yet excel in beauty.

Soil and district of necessity govern the cultural treatment of these plants, for in low-lying and very humid places it may be necessary to winter the layers in cold frames. Where, however, conditions are favourable, autumn planting s a decided advantage. The present is a suitable ime to plant these Carnations from pots.

Mention has been made of a longer flowering season, and this is due to the introduction of the Perpetual Border Carnation. Whilst this extended season of blooming is to be welcomed n the newer type, the old border Carnation has valuable qualities, which those whose resources do not admit of other than growing Carnations entirely in the open cannot overlook, while all who prize the ideal in florists' flowers, and require neatness of habit, must still grow the orthodox border varieties. Yet in such varieties as Sussex Pink, Sussex Scarlet, High-and Lassie, Rosalind, and two or three others, here is material which it would be folly to gnore where Carnations from about the middle of June until so long as the weather remains open would be welcome. In these varieties there is ample evidence of the influence of the true perpetual, in fact, rather too much, for dwarfness is being forfeited to extend the flowering period far beyond what our climate allows dvantage to be taken of. They have, however, a constitution which enables them to withstand n average winter without injury. Rapidity of growth is not a marked feature in the perpetuals nd the successful cultivation of the new race ppears to be summed up in having strong plants eady for planting out in spring, the season being too short to admit of weak plants showing the perpetual-flowering habit to the advantage which ightly belongs to them.

The true perpetuals have long passed the ex-erimental stage, in so far as their use in the ower garden goes. Here again, however, the secret of a lengthy display depends on the age of the plants when they are put out. It is too much to expect spring-rooted cuttings to make an attractive bed: moreover, it is unreasonable, for what is not possible under glass is totally out of the question in the open. To ensure success with perpetuals as bedding plants the flower buds should be in evidence, or nearly so, in May, when the plants are put out, and this can only be obtained by propagating in the summer and autumn previous to planting. Under these conditions, and given a fair season and good treatment, they are an unqualified success, with the exception of slow growers such as Baroness de Brienen, and others that resent open-air treatment, like Carola and its sports. The best varieties, however, belong to the May Day and Britannia type, as they possess the desirable qualities of freedom of growth and dwarf habit. Aviator, May Day, Wivelsfield White, Champion, Brilliant, Winter Glow, Britannia, White Britannia, and Nora West are a few perpetual varieties which do well in the flower garden. *Y. G.*

HARDY FLOWER BORDER.

RANUNCULUS.

Ranunculus asiaticus, the Persian King Cup, may be had in endless variety, and in both symmetry and brilliancy of colouring excels most of the other species. Beds or borders formed of the plants present one of the most attractive displays in the garden that it is possible to conceive. The flowers are of shades of purple, violet and black intermixed, snow-white, rose, carmine, yellow to crimson, whilst a few are prettily striped and mottled equal to the Carnation or Picotee. All forms of the plant are very beautiful, and deserve to be represented in gardens. They enjoy a fairly open situation, but not too exposed, and for preference, a sandy loam. It is necessary to dig the ground deeply, incorporating well-rotted manure with it. The surface should be kept level as the work of digging proceeds, to promote a fine tilth, and thus conserve an equable degree of soil moisture during the plants' season of active growth. The best results are obtained from spring-planted tubers, as the young plants have then a better opportunity of forming strong growth without a check, which they frequently suffer when they are planted in autumn. The corms should be set six inches apart and two inches deep, pressing them firmly into the soil, and finally covering them with a layer of cocoa-fibre refuse. They need occasional waterings during times of drought.

The hardiest section of Ranunculus is undoubtedly that known as the Turban or Turkish. These forms will withstand almost any kind of inclement weather, and push up their foliage in huge tufts, above which arise numerous spikes of pretty Rose-like flowers in all shades, the flower-stalks growing from 10 inches to 15 inches high. The plants are thus well adapted for furnishing beds, or for massing.

Persian Ranunculi have large double flowers in many shades of showy colours, and a neat, compact growth.

The Scotch and Dutch Ranunculi are also to be recommended for massing in beds, forming lines, etc., and are invaluable for supplying cut blooms for house decoration, the flowers lasting well in water. *W. Logan.*

TREES AND SHRUBS.

LINUM ARBOREUM.

This attractive little shrub from the eastern Mediterranean region is certainly deserving of more attention than it receives, being quite the best yellow-flowered Flax, having lighter and less orange-colour in its flowers than either L. flavum or L. capitatum. When in flower few plants are so bright, while its vividly glaucous foliage, almost of a steely blue, is pleasing at other times of the year. It forms a neat, compact, evergreen shrub (Fig. 93) up to 2 feet high, and probably more in a warmer climate.

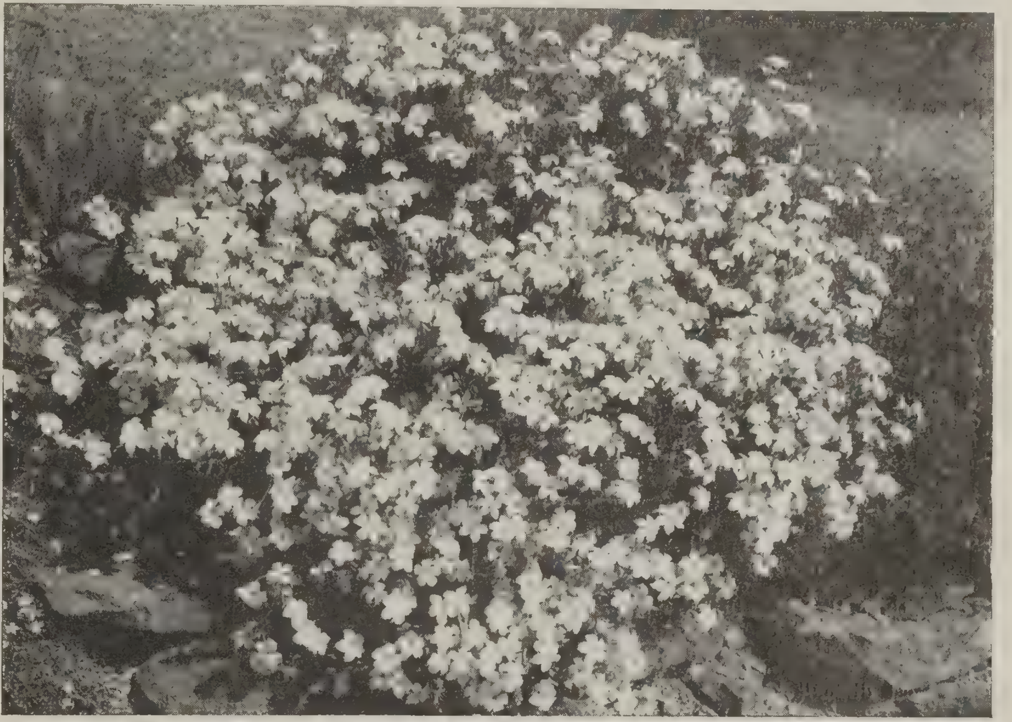

FIG. 93.—A FINE CLUMP OF LINUM ARBOREUM; FLOWERS YELLOW.

The flowers are of a bright Daffodil yellow, 1½ inch across, and borne from May till August, on erect terminal, somewhat capitate panicles, from 4 to 6 inches in length; the petals are of a fragile texture, and although the flowers are rather fugacious, they are borne so freely that they almost completely cover the foliage. The five green sepals are narrow and lanceolate, or acuminate, the top leaves being similar in shape, while the lower leaves are from one to two inches long, broader at the apex, gradually tapering to the base and almost stalkless. The species was first introduced in 1788 by Prof. J. Sibthorp, who was then Professor of Botany in the University of Oxford; at that time the plant was treated as a greenhouse shrub, and grew several feet high, but out-of-doors it seldom exceeds 2 feet high and not always that before it dies, as old plants seem less able to withstand the cold than young ones. It is readily propagated from cuttings of half-ripened shoots, placed in sandy soil, under a bell-glass in a little warmth (and it is advisable to keep a few young plants in reserve); or it may be raised from seeds which are freely produced, although it will be found to prolong the life of the plant if the young seed vessels are picked off. It should be planted in a sunny position, in soil that is not too rich; and should there be an absence of lime in the soil, a little mortar rubble should be added. *F. G. Preston, Botanic Garden, Cambridge.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cypripedium.—Cypripediums of the bellatulum section, which comprise C. niveum, C. Godefroyae, and their varieties, are showing their flower scapes, and should have water afforded them whenever they become dry. There are also numerous hybrids, in which one or the other of these species is a parent, and the hybrids should be grown under similar conditions to the species. This section has been considered difficult to manage, and this is so in comparison with the ease by which most growers cultivate the green-leaved section of this large family of plants. The bellatulum Cypripediums should be grown in the lightest and warmest part of the Cypripedium house, in a position close to the roof-glass, where they will receive the maximum amount of light and air and be well out of the way of the syringe. Whilst plenty of light is necessary, they should not be exposed to strong sunlight at any time. As the plants pass out of bloom, those that require repotting should be attended to. Use a compost consisting of limestone, peat, and good fibrous loam broken into pieces according to the size of the plants. For large plants the material should be used in a rougher and larger state than for the smaller ones. The pots should be sufficiently large to accommodate the plant for at least two years, as these Orchids resent root disturbance too often. At the same time care must be taken not to damage the succulent roots. The pots should contain plenty of drainage material, and this may consist of limestone or old mortar rubble. Pot firmly, and, when the plants are well rooted in the compost, give the roots copious supplies of water, taking care that the plants get dry between each operation. The old method of keeping them dry during the winter is a mistake. Both an excess and a deficiency of moisture have the same effect upon the plants; those that lose their roots by shrivelling and those that lose them by rotting both eventually deteriorate and gradually dwindle away. Once these plants have lost their roots it is most difficult to restore them to health and vigour again, hence the necessity of paying the greatest attention to the roots.

Late-Flowering Cypripediums.—Late-flowering varieties of the winter-flowering Cypripediums which have passed out of bloom should be repotted forthwith, should they require it, for, if this operation is deferred too long, they do not readily become re-established, especially if the weather is bright and warm. These Orchids should be potted in a similar compost to that advised previously for the green-leaved section of Cypripediums.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Danger of Frost.—It is to be hoped that the frosts of last week on several consecutive nights will not have caused much damage to the Plum crop. The dry atmosphere may have helped to prevent it. Preparations should still be made for such eventualities with the Apple crop. Where the growth of these trees is restricted to a height of, say, 8 to 10 feet, it is possible to arrange a light framework on which fish netting of double thickness may be used to encircle a tree or a number of trees. This would apply mainly to select varieties, such as Cox's Orange Pippin and Laxton's Superb. Care must be taken to see that all ties are secure on wall trees. As these trees pass out of flower, the frost-protecting material and boards should be removed. Our crop of Pears promises, from present indications, to be a light one. Pear trees will need the greatest attention to secure the fullest advantage of the fruits that do set.

General Remarks.—Attention should be paid to all grafts, loosening the ties if necessary. Continue to disbud or stop shoots of wall trees at intervals. Spraying may be resorted to in the case of trees that have not yet expanded their blossoms. The use of arsenate of lead should be discontinued at this period, or bees visiting fruit blossom will be destroyed. Care must be taken in the use of this insecticide where ground crops are near, and, if such are ready for immediate use, spraying should be withheld. Fruit in store should be examined carefully. An increase of decay is now bound to be seen, and long-keeping varieties, such as Newton Wonder and Bramley's Seedling, are now mature. The former variety will be found quite suitable as a dessert Apple, failing others, at this time of year. Although only suitable as a culinary Apple, Norfolk Beefing is a good keeping variety. Dumelow's Seedling (Wellington) is equally good, but the tree is very subject to canker. I have found Gascoyne's Scarlet Seedling a useful table Apple during the past few weeks. A variety strongly recommended to me—D'Arcy Spice—is of excellent flavour and has good keeping qualities, but appears to be a poor grower. Easter Orange will certainly be a useful variety as a late keeping dessert sort. Cherry trees subjected to Cherry leaf Scorch (Gnomonia erythrostoma) should be sprayed twice, just before and after the flowering period.

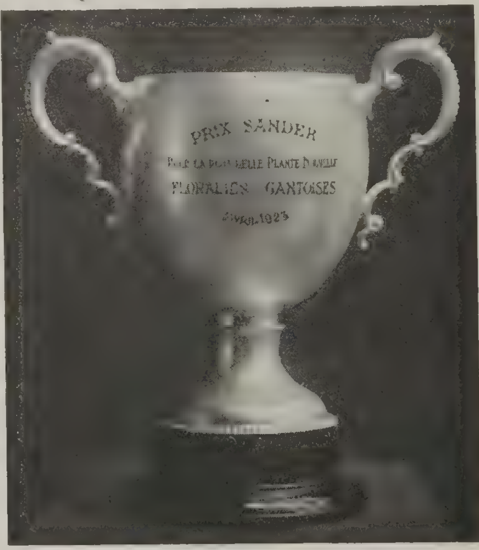

FIG. 94.—THE SANDER MEMORIAL CUP, OFFERED FOR THE BEST NEW PLANT AT THE GHENT SHOW (SEE PAGE 211).

Strawberry Beds.—Unmulched plantations of Strawberries should be constantly hoed to promote a fine tilth and to encourage liberal growth of the plants. In doing this, do not draw away the soil from the crowns of the Strawberries.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Nerium Oleander.—Even when not in flower, well-grown specimens of Oleanders make handsome plants for furnishing the conservatory; successful flowering depends very largely on the wood being well ripened. The plants should, on this account, be grown in a light, sunny position in a greenhouse; during the summer they may be stood out-of-doors in an open, sunny situation. When the flower buds begin to show, care should be taken to disbud the lateral growth that appears below them, for if such growths are allowed to develop the flower buds will drop. When in full growth Oleanders need ample supplies of water at the roots, but during the winter they should be kept on the dry side. They are very liable to attacks of red spider and mealy bug, and require frequent attention to keep them clean. They may be propagated from the tops of mature shoots inserted singly in small pots, and plunged in a close case furnished with slight bottom-heat. There are numbers of beautiful varieties of Nerium, including both single and double-flowered sorts.

Winter Flowering Begonias.—This section of Begonia was raised between B. socotrana and the tuberous-rooted varieties; they are represented by such fine varieties as Optima, Exquisite, Fascination and Mrs. Heal. The plants have now passed their most critical period—the resting stage—and are beginning to push fresh growth from the base. Such growth should be encouraged by giving the plants more moisture at the roots. This, combined with more atmospheric moisture, should soon result in a supply of young shoots suitable for use as cuttings, and should be secured when they are three to four inches in length. They are best inserted singly in small pots, plunging them in a propagating case with slight bottom heat. Their subsequent cultivation presents few difficulties as they grow well in a house having an intermediate temperature. They should not be over-potted, and watering must be done carefully at all times. Attacks of Begonia mite must be guarded against by the use of the sulphur vaporiser.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Mulching Paeonies.—Paeonies require a generous treatment to enable them to develop and sustain their gorgeous flowers, and mulchings are of great benefit to them. Cow-dung is the best material for use as a mulch, but this is not obtainable everywhere, and where it is not available recourse should be made to old stable manure. Perchance some of the first manure can be secured, but not enough, in which case a blending of the two makes an excellent mulch, and it should be applied now. Any roots of Paeonies carrying an excess of small, weakly, flowerless shoots should be somewhat relieved of such growths in order that all the energy of the plant may be directed to flower production.

Double White Arabis.—Seldom is this plant referred to, but a large patch of it in bloom is not unlike, in the distance, a bed of Lily of the Valley—though the individual flowers are nearer akin in size to those of small Stocks—and, being double, last longer on the plants than those of the more frequently seen single variety. Moreover, the spikes of this double form are stronger and stand erect, displaying the individual blossoms at their best. Although pure white when fully open, the flowers in the bud stage show a tinge of pink on them. The stock may be increased by dividing the roots or inserting cuttings, both operations being deferred until after the plants have passed out of flower. These methods of propagation may be followed for the single varieties of Rock Cresses—more popularly known as Aubrietias—or the single sorts may be also raised from seed.

Polyanthus Seed.—Where it is necessary to add to the stock of next year's flowering plants sow seed of Polyanthus now, in a box or pan, if only a few plants are wanted, but where large numbers of plants are required sow the seed in shallow drills in a cold frame, using in either case light, rich soil for the purpose and give shade. When the seedlings are of a suitable size, transfer them to other boxes, cold frames, or a nursery bed out-of-doors in a semi-shaded spot. Sifted leaf-mould is a valuable aid to good progress in those early stages.

Scirpus lacustris.—The Bullrush has a peculiarly ornamental value, and is most at home in swampy ground or fringing the end of a pond or lake. For this latter purpose it is employed in the park here. Owing to the vigour and rough nature of this Rush, it is not to be recommended for choice or restricted water-courses. Clumps of this Rush associate well with Pampas Grasses for indoor winter decoration.

FRUITS UNDER GLASS.

3y W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Melons in Frames.—The planting of Melon eeds in pits or frames may now be done, using -inch pots as seed-pans. If the pits are proided with water pipes, a deep hot-bed of ermenting material is not essential, but if the it is unheated a good hot-bed will be necessary o ensure a steady warmth. Adequate protecting aterial for covering the pit at night should e available. Unless a steady warmth can be aintained it would be advisable to wait until he weather conditions are more favourable. The ermenting material should be thoroughly repared in advance of making the hot-bed. fter making the latter, place a ridge of suitable oil at the back of the pit or frame in a similar anner as recommended in a previous calendar r Melons in houses. When the plants are fficiently advanced in growth set them out bout six inches from the back of the pit or ame, allowing a space of 21 inches to 24 ches between them; vigorous growing varieties hould be allowed the maximum space. The bsequent training of the plants should be milar to those grown in houses and trained on e cordon system.

Cherries.—After these fruits are set there hould be no attempt to hasten their development. Moderate temperatures should be proided until the stoning process has been cometed. Use fire-heat only to prevent the temerature falling below 45° at night, and to aintain it at 50° by day. Open the ventitors a little when this warmth is reached. In t, sunny weather the freest ventilation should afforded the trees, and at no time should e temperature be higher than 70°. If it cannt be kept so low as this by other means, a ight shade may be used during the hottest rt of the day. Allow the house to cool down 60° before closing time. Syringe the trees the mornings of bright days, and again as on as the house is closed. Careful attention hould be paid to watering, especially in the se of trees in pots, and they will need occaonal manurial assistance in a weak form. Coron-trained trees should have their side shoots opped at the third or fourth leaf, allowing e leaders to grow unstopped until the trellis covered. When dealing with fan-trained trees, ain in young wood where necessary to furnish e tree, and stop all other shoots in order to omote the formation of fruit buds.

THE KITCHEN GARDEN.

y R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Lettuces.—Plant out autumn-sown Lettuces in sheltered position, and make sowings out-ofors of both Cos and Cabbage varieties. Connue to sow Lettuce seed once a fortnight to aintain an unbroken supply, and thin the edlings to one foot apart as soon as they e large enough to handle. Dust around em with old soot, and use the hoe frequently keep the soil stirred. Celery ridges are cellent on which to sow the earliest Lettuce ops.

Peas.—Sow varieties of tall-growing early eas in boxes and raise the seedlings in a cold ame for planting out next month, also sow a w or two outdoors in an open, sunny posion, taking care not to sow too thickly. If ice are troublesome, dust the seed with red ad before sowing, and place traps along the ws. A good trap is made by sinking to the im in the ground a two or three-pound jam-jar ontaining water to two-thirds its depth. have caught many mice by this simple ethod. Dust the young plants during showery eather with wood ash, as Peas respond readily o potash, which this contains. Birds are metimes apt to peck out the growing points; herefore, the plants should be staked as soon s they are through the ground, as this will elp to ward off the birds. Continue to sow a resh row or two about once a fortnight to aintain a supply. Allow plenty of room etween the rows.

NOTES FROM WISLEY.

Although the correct names used by gardeners for plants are often a source of grievance to those unversed in botany, a common language and system is absolutely essential in plant nomenclature, and many of the Latin names when understood are as attractive as their English equivalents. It cannot be denied, however, that in some cases this is not so and that plants are invested with names which seem hopelessly unwieldy and even ridiculous to the ordinary man. A case in point occurs in Rhododendron hippophaeoides, a pretty little shrub which is now in bloom at the R.H.S. gardens at Wisley. The flowers are nearly as blue as those of R. intricatum and somewhat larger. The foliage bears a silver sheen like that seen on the leaves of Sea Buckthorn (Hippophäe rhamnoides), which is apparently the reason for this unwieldy specific name.

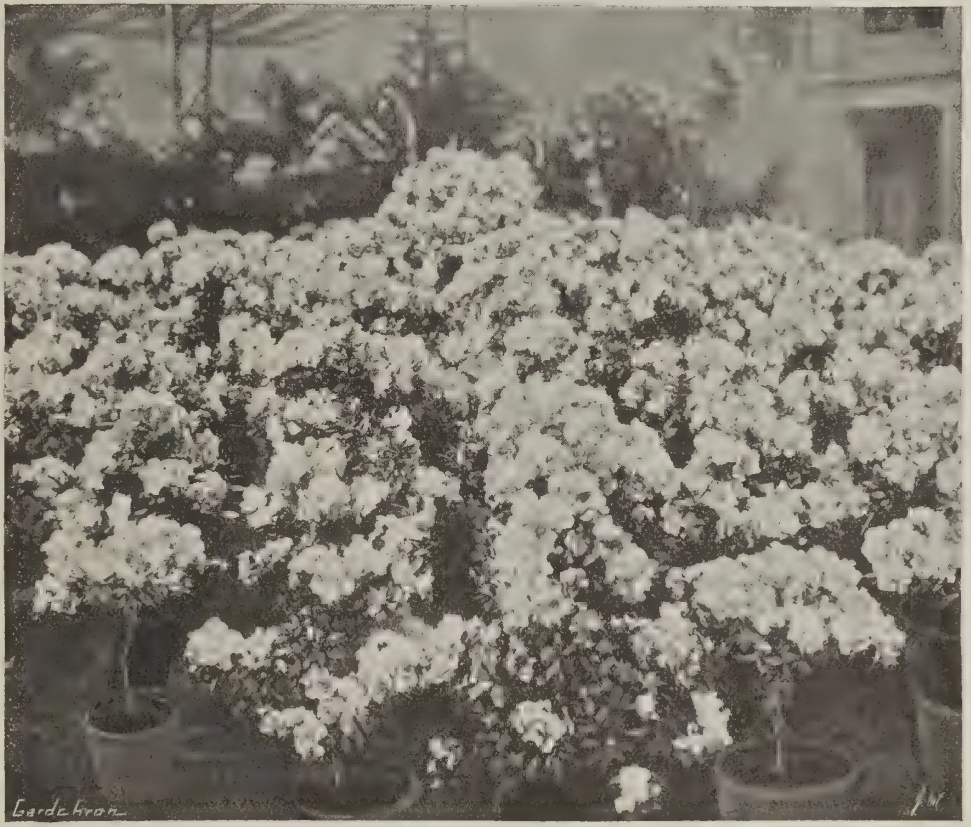

FIG. 9[illegible].—AZALEA ALBERT-ELIZABETH, AWARDED THE SANDER CUP FOR THE BEST NEW PLANT AT THE GHENT EXHIBITION. THE FLOWERS ARE WHITE WITH A PICOTEE EDGE OF BRIGHT CARMINE. (SEE PAGE 219.)

Numbers of seedlings of R. campanulatum are also in flower and some vividly-coloured R. arboreum hybrids.

The sulphur-flowered R. lutescens has never flowered so freely before as this year, and makes a graceful woodland plant. R. Thomsonii, with its Arbutus-like stems and blood-red flowers, is also blooming exceptionally freely.

The Alpine house is a blaze of colour chiefly from blue and purple-flowered Primulas, such as the hybrid Mrs. J. H. Wilson and P. × Juliana.

Primula Winteri is now nearly over, but in the case of the thrum-eyed form in this house, which has been set by means of pollen from the pin-eyed flowers, the whole calyx and ovary have swollen up, and give the effect of a handsome green flower.

Other Primulas in bloom are P. frondosa, P. fasciculata, a little gem collected by Forrest, bearing red flowers with a yellow eye, and, out in the open, P. rosea and P. denticulata.

In the Alpine house is also to be seen the minute-flowered Androsace pyrenaica. Here, also, but considerably more conspicuous, is the clear yellow Anemone ranunculoides which has been naturalised in a few places in this country.

On the rock-garden, one of the most beautiful plants in bloom at the present time is Anemone Hepatica var. angulosa. The flowers are of a shade of blue difficult to describe, but none the less enchanting, against which the white stamens stand out conspicuously. The reverse of the petals is silvered, and the sepals and flower stalks red-brown. The blue Anemones blanda and appenina, which are often confused, have started flowering in the wild garden, where several species of Cardamine are showing bloom. Among these are C. bulbiferum, a native, and C. digitata. The latter, though not unlike C. bulbiferum, may easily be distinguished from it by its palmate leaves and absence of bulbils. It is also earlier in flowering, has larger blooms, and is not so tall. Growing in the same recess is the delicate and Anemone-like Isopyrum thalictroides.

The spotted leaves of Orchis maculata are now pushing through the soil. Numbers of these plants are to be found growing through and around the still dormant Male Ferns, which seem to provide suitable germinating places for the dust-like seed of these Orchids.

Various pleasantly scented shrubs are sending out their perfume, such as Viburnum Carlesii, the popularity of which seems now assured, the Vanilla-scented Azara microphylla (familiarly known as the "bothy pudding"), Osmanthus Delavayii and Daphne Mezereum, the flowers of which are now giving place to foliage. A lesser-known and small evergreen species of Daphne is now coming into flower, namely, D. tangutica; the outside of the corolla tube is stained a bright red purple, but the flowers, when open, are nearly white.

Among the plants received from the Mt. Everest Expedition a white-flowered Composite with woolly foliage is showing bloom. It appears to be a species of Helichrysum and of no special garden merit.

In the same pit is a curious freak of nature in the form of a Dahlia sporting alternate instead of opposite foliage. It is one of the plants sent for trial at Wisley. *J. E. G. White.*

CLIMBING WORMS.

Among the many letters which are reaching me respecting worms, prompted by the articles which have appeared in the *Gard. Chron.*, is one from the Royal Horticultural Society's Gardens at Ripley, which is especially interesting. Mr. Fox-Wilson sent me a tube of worms with the statement that "their interest lies in the fact that these worms were found under grease bands on standard Apple trees, about three feet above the ground. When the old bands are taken off, about the third week in September, to be replaced by new ones, worms similar to the enclosed are found every year underneath the old bands. I am at a loss to account for their presence, and the only food appears to be some of the older bark, which surrounds them in the form of 'grass.'"

Here is a subject concerning which few observations have hitherto been published. About 20 years ago a work appeared entitled *Deserts and Forests of America*, in which we find the query, "Is it generally known that worms can climb walls and plank-palings?" The author proceeds to say that they do so, slowly and surely. "They often climb up the outside of water-butts, and falling in are drowned." He adds (p. 34), a few other particulars about worms which merit attention, but belong to another branch of the subject. A reviewer, making special reference to this inquiry, replied: "We may be allowed to inform Mr. Fountain that several species can. and do, climb trees: and that to several forms of these the appropriate name of Dendrobaena has been given on that very account." The reviewer gives no evidence from his own experience that worms climb trees, though his statement is perfectly correct. He is in error, however, when he says the name Dendrobaena was given to several forms for that very reason. My friend, Dr. Gustav Eisen, who introduced the term in 1874, applied it to a tree-dweller. and not a tree-climber. Though there are now quite a number of species of Dendrobaena known to science, only one or two are known to be climbers, and some do not even live in trees. They are called Dendrobenes because they are generically related to the type, and not on account of any peculiar life-habit. What, then, are the worms which are known to climb trees, fences, water-butts, door posts, spouts and walls? Those received from Ripley are typical. One is the well-known brandling, readily recognised by its chestnut-brown and golden bands. Another is the gilt-tail, a true Dendrobene, with life-habits of a very similar nature to those of the brandling. These worms are peculiarly fond of decaying vegetable matter, dead leaves, mouldering tree trunks and rotten wood. They appear to climb old trees occasionally in search of holes where decay has begun, but they also have a peculiar fondness for old sacking. Many years ago during a worm-hunting excursion on the moors beyond Haworth, I found them in great numbers under a portion of an old sack, and since then I have invariably found them under similar conditions when shedding their habits and habitats. I have also found them on painted woodwork several feet from the ground, as well as on slop-stones or sinks, which have been reached by means of the waste pipe. Other species I have collected in bathrooms upstairs. the worms in these cases also having climbed by means of the discharging pipes.

It may be asked what are the means which worms possess for feats such as these. In the first place there are the well-known bristles. An average sized climber has about 100 segments, each of which possesses eight bristles. Thus we find 800 fine claws, finger nails, or grappling hooks ready for action. and these can lay hold of the finest irregularities. But in many species of worms the setae are not arranged with a view to climbing, and only a certain percentage would come into action. In the climbers all the setae are available for this purpose.

Next we find that many worms secrete a viscid slime which would greatly assist them in their operations. The shapes of worms also have to be considered. Round or octagonal forms would be at a disadvantage compared with the gilt tail and brandling, whose ventral surface is concave, so that it acts as a sucker, and thus enables the worm to get a very firm grip. It must be remembered that with worms like these, capable of adpressing themselves very closely to the woodwork, the centre of gravity is exceedingly favourable, and the risk of falling extremely small.

Lest it should be thought that tree climbers are injurious, I hasten to remark that such worms never attack sound bark or wood, and never wantonly damage trees in the way that certain caterpillars do. If they are found under the bark, or in the tissues, it is a sure indication that an unhealthy condition already exists, and their presence should lead to careful examination, and treatment of the parts where they are found. It is much to be desired that gardeners, fruit growers and foresters should collect any worms they may find on trees and have them examined. The subject is one about which little is at present known, and I should be glad to identify and report on specimens sent to me for the purpose. Where possible, living material should be sent in tin boxes, which should be free from perforations through which the specimens might escape. *Hilderic Friend, Cathay, Solihull.*

APPROXIMATE AVERAGE ORDER OF BLOSSOMING OF MARKET VARIETIES OF PEARS AND APPLES IN THE SOUTH OF ENGLAND.

Pears.

Earliest Varieties.

1st to 7th day: Varieties such as Brockworth Park, Doyenné d'été, Jargonelle, commence to flower early, but are not usually suitable for market.

Early Varieties.

8th day: Beurré d'Amanlis (S), CONFERENCE (F_2).

9th day: Marguerite Marillat (F_3), Beurré Clairgeau (S), DURONDEAU (F_3).

Mid-Season Varieties.

10th day: Louise Bonne of Jersey (S), Emile d'Heyst (S), CLAPP'S FAVOURITE (S), Marie Louise d'Uccle (S).

11th day: FERTILITY (S), Catillac (S).

Late Varieties.

13th day: Hessle (F_3), Beurré Capiaumont (S).

14th day: DR. JULES GUYOT (F_3).

16th day: Doyenné du Comice (S).

Notes.

Time of flowering of Caillot Rosat, Chalk, Lammas, and Muirfowl's Egg not ascertained.

The above list includes market varieties mentioned in the Ministry of Agriculture's leaflet on *Profitable Pears for Market.* The safest varieties are printed in large type.

The order of flowering is based on records at R.H.S. gardens at Wisley, at Droitwich Experimental Garden, the Fruit and Cider Institute, near Bristol; by H. Somers Rivers, at Sawbridgeworth; and at Wye, Kent. All vary slightly, but agree in the main order.

The self-fruitfulness or sterility is based on observations at Wisley gardens and at Wye. Pears, as a rule, appear to be self-sterile, and most of those that are self-fruitful are only slightly so. S = self-sterile; F_1 = somewhat self-fruitful; F_2 = occasionally self-fruitful; F_3 = very rarely self-fruitful.

Apples.

Earliest Varieties.

1st day: Irish Peach (F_1), not recommended, but used as the standard for earliness.

3rd day: Warner's King (F_3).

4th day: Bismarck (F_3).

Early Varieties.

5th day: BEAUTY OF BATH (S), STIRLING CASTLE (F_1).

Mid-Season Varieties.

10th and 11th day: JAMES GRIEVE (F_3), GLAI STONE (F_2 or S), ALLINGTON PIPPI (F_3).

13th day: RIVAL (F_2), Cox's Orange Pippin (or F_3), King of the Pippins (F_3).

14th day: EARLY VICTORIA (F_2), BRAMLEY SEEDLING (F_3 or S), Lord Grosvenor (F_1 Ecklinville (F_2), WORCESTER PEARMAI (F_3 or S), GRENADIER (S).

Late Varieties.

15th day: LORD DERBY (F_1), LANE'S PRIN ALBERT (S or F_3).

17th and 18th days: NEWTON WONDER (F_3 ANNIE ELIZABETH (F_3), Lady Sudeley (or S), Blenheim Pippin (S).

24th day: Graham's Royal Jubilee (S).

Notes.

The varieties are those mentioned in th Ministry of Agriculture's leaflet, *Profitab Apples for Market.* Those in large type a specially recommended.

The average order of blossoming is based c records of R.H.S. at Wisley, at Droitwic Experimental Garden, Woburn Fruit Farr by John Watkins at Hereford, at the Fruit a Cider Institute near Bristol, and at Wy Kent.

From a record of 20 varieties of Apples Wye, in 1922, the average length of time flower of a variety was 10 days from start fall of petals, varying from 8 to 12 days, fr flower for about 2 days, 3 to 5 days after fir flowers. The weather during Apple blosso ing in 1922 was hot and dry.

The notes on self-fruitfulness or self-sterili are based on records of Royal Horticultur Society, John Innes Horticultural Resear Station, and at Wye. S = self-sterile; F_1 somewhat self-fruitful; F_2 = slightly se fruitful; F_3 = very rarely self-fruitful. Tw thirds of the varieties of English, America and Australian Apples are self-sterile; no is sufficiently self-fruitful to plant alone block. *Cecil H. Hooper, Agricultural Colle Wye, Kent. April, 4, 1923.*

FRUIT REGISTER.

APPLE TOMPKIN'S KING.

The fruits of Apple Tompkin's King (sy King of Tompkin's County) I send you—the fi week in April—proves it to be one of the b late varieties, both for dessert and culina purposes. They are, perhaps, a little large dessert purposes, but very juicy and firm in t flesh. The Apples are a good shape, w bright yellow skin, streaked with red at t time of the year, which gives them a handso appearance on the table. For culinary use th require little or no sweetening. The tree is good clean grower and makes plenty of wo In its young state it requires to be frequen root-pruned to bring it into free bearing. *A. Wadds, Englefield Gardens, Reading.*

VEGETABLE GARDEN.

WINTER SALADS.

Mr. C. Nicholson (p. 166) expresses a do as to the value of Claytonia perfoliata as a win Salad plant, so I write to say that I c corroborate Mr. W. Auton's experience, and him that we use it habitually and find it ex lent. It comes up every year self-sown in garden at Liss, Hampshire, and we gather you plants of it almost every day to mix with Endi Lamb's lettuce and Rampion. This last, young plants of Campanula Rapunculus, is mentioned by Mr. Auton, but I recommend to try it. The young plants come up also s sown and the young leaves are good for sa up to about May. Then, of course, the stalks push up and give their pretty flowe panicles so valuable for decoration. *J. Gamble.*

NURSERY NOTE.

A LONDON FLORIST'S NURSERY.

Some of the larger London florists find it ry convenient—even necessary—to include a all nursery in connection with their busi- ess in the metropolis. It enables them to ow and maintain a continuous supply of wering plants and cut flowers. It also acts a clearing station for choice plants obtained om other sources, for eventual despatch and sposal as required. Such a business requires th a Palm-house and a glass-house in which e choice Ferns and foliage used for public d private functions may be recuperated. A rsery of this nature is owned by Mr. oyses Stevens, in conjunction with his well- own florist's business at 146, Victoria Street. is probably the latest and most up-to-date rsery of its kind round London, and has en established about four years.

The houses are all new and provided with e latest improvements and necessities for owing plants, regardless of expense. The rsery, which is about one acre in extent d mostly covered with glass-houses, is uated in Magdalene Road, Wandsworth mmon, in the near vicinity of 300 acres open space, within ¾ mile of Wimbledon mmon, and yet within 12 minutes' run by otor-van from Mr. Stevens' London shop near ctoria Station.

The Palm-house is a fine structure, 100 feet ng, 30 feet wide, and 18 feet high. A side age runs around the house, while a four- r stage is arranged through the centre, leav- g ground space for very large Kentias, Cocos xuosa; Phoenix canariensis, P. Roebelinii, aucaria excelsa, etc. On a recent visit I ticed in this particular house a fine speci- en of Chamaerops excelsa, 15 feet to 16 feet gh—a fine plant for a large conservatory— d another of C. Fortunei, 6 feet high. The her division contains large numbers of chardia (Calla aethiopica in flower; Lilium eciosum, L. rubrum and L. album, for supply- g cut blooms; also Genistas, Dracaenas, large ephrolepis, and other Ferns useful for decora- ve purposes. Suspended from the roof are rge numbers of big wire baskets filled with sparagus Sprengeri. A large heated cellar der the centre of the house is used for rcing early Hyacinths, etc.

This glass-house contains eight water-tanks. n either side of the house is a wide, heated ame, and both frames are filled with Lilium ncifolium, L. l. rubrum, L. l. album, L. ndidum, etc., which are transferred to the rger house for flowering.

Another glass-house, 130 feet long, is de- ted to Adiantum cuneatum for supplying cut onds. The house contains 1,500 plants, while rough the centre of it hang wire baskets ntaining Asparagus Sprengeri. Another ouse, 100 feet long and 21 feet wide, was filled its utmost capacity at the time of my visit ith many hundreds of pot Hyacinths in ifferent stages, also a large quantity in boxes or cutting. Altogether, over 20,000 Hyacinths ere in pots.

I saw many Liliums in bloom and others for uccession; a quantity of Azalea indica, all f the best kinds; also large batches of seed- ing Asparagus plumosus and S. Sprengeri. hese being for the special purpose of re- lacing worn-out plants. Thousands of these sparagus plants are grown for cutting pur- oses alone.

Another house, 120 feet long, with beds on ither side and furnished with bottom heat, vas filled with Asparagus plumosus, while a helf running each side of the house was filled ith A. Sprengeri. Large wire baskets con- aining A. Sprengeri were suspended in two ows down the whole length of this house, ll for cutting purposes. Every inch of room s made use of. Another glass-house the same ength is similarly filled. Underneath the tage were Hyacinths fresh from the ash-beds. nd in front of this house runs a wide heated rame for starting Liliums, etc. The space round the glass-houses is used for garage, ffice, potting-shed, standing-out room for arious plants, large Bays, etc. One side of his area is used for the plunging of Hyacinths, the place being utilised in summer for Chrysanthemums, of which a very large quantity is grown, of varieties suitable for supplying cut blooms.

The water supply of the nursery is very convenient, and the houses are well heated by two powerful boilers. The nursery has an air of tidiness about it. The offices, greenhouses, potting-shed, and stokehole are all lighted by electricity.

The establishment is under the management of Mr. Weeks, who for 20 years was in charge of the soft-wooded department at Messrs. James Veitch and Sons, Chelsea, and 10 years at their Feltham nursery when the department was moved there, until the firm closed down.

Mr. Stevens' nursery is well worthy of a visit by those interested in seeing how plants are grown in large quantities for supplying the wants of a large London florist. *John Heal*

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM AMILLUS GERRISH'S VARIETY.

R. Gerrish, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell) sends a superb flower of one of the richest coloured hybrid Odontoglossums yet produced, and which has the glowing tints of the best red Odontiodas, with the large size and perfect shape of the finest type of Odontoglossum.

The parents are Odm. illustrissimum (ardentissimum × Lambeauianum) and Odm. Amethyst (eximium × Lambeauianum), O. Pescatorei, O. crispum and O. Harryanum. The very broad sepals and petals are ruby-crimson, with a thread-like and scarcely perceptible silver margin; there is a slight tinge of rose on the tips of the sepals. The large, fringed lip is reddish-crimson, with a white zone in the middle and white margin. It is a beautiful novelty of which its owner is justly proud.

CATTLEYA DELPHIN.

Both Messrs. McBean, Cooksbridge, and Messrs. Flory and Black, Slough, have sent us flowers of this handsome hybrid, which was recently first recorded for Messrs. McBean. The cross is between C. Tityus (Enid × Octave Doin) and C. Empress Frederick (Dowiana × Mossiae). The flowers from both raisers are very similar, C. Tityus appearing largely in each. The large flowers have rosy-mauve sepals and petals, the latter being almost circular in outline. The showy lip has a light orange disc, the crimped front lobe being claret purple, the veining showing the C. Mossiae ancestor plainly.

LAELIO-CATTLEYA GWENDOLEN LEACH.

A very good new cross of complicated parentage and resulting in a very pretty flower is sent by Frederick J. Hanbury, Esq., F.L.S. The cross is between Mr. Hanbury's L.-C. Capulet (L. purpurata × L.-C. G. S. Ball) and L-C. Merciana (C. amethystoglossa × L. flava). The flower, which is of firm substance, is rich chrome yellow, with a claret-red lip that has a gold shade.

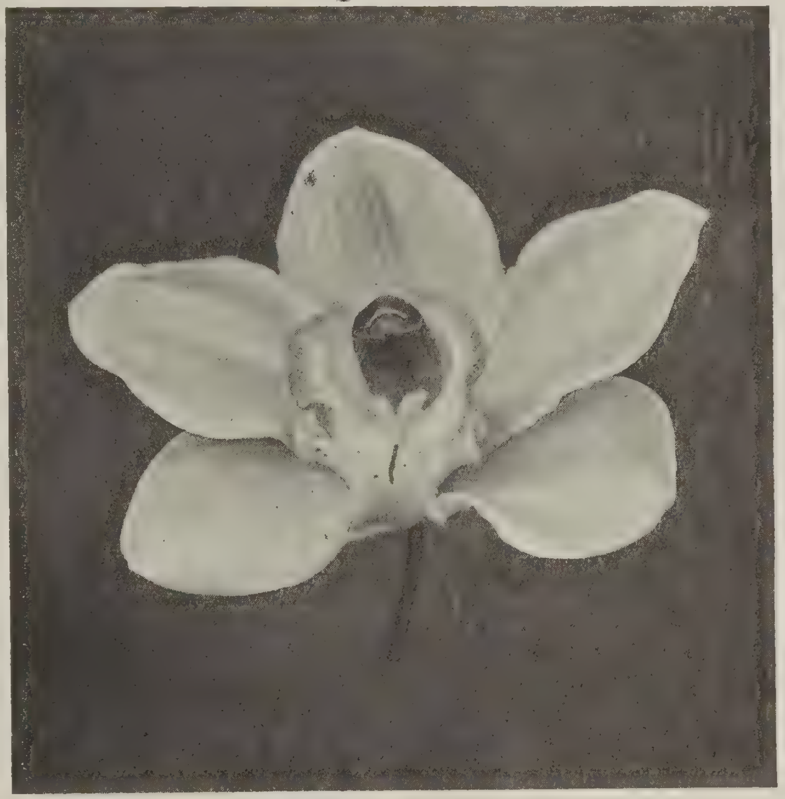

FIG. 96.—CYMBIDIUM MERLIN, WESTONBIRT VARIETY. R.H.S. FIRST-CLASS CERTIFICATE, MARCH 13, 1923.

CYMBIDIUM MERLIN WESTONBIRT VARIETY.

In our issue of April 22, 1922, we gave some account of the outstanding collection of Cymbidiums in the gardens of Lieut.-Col. Sir Geo. L. Holford, K.C.V.O., at Westonbirt (gr., Mr. H. G. Alexander), together with illustrations of three of the beautiful forms in flower at the time of our visit. We now illustrate another choice variety from the Westonbirt collection, Cymbidium Merlin Westonbirt variety (see Fig. 96), which obtained a First-Class Certificate at the Royal Horticultural Society's meeting on March 13 this year. The cross is between C. Alexanderi and C. Dryad, the latter a fine hybrid flowered at Westonbirt in 1914, the cross being between C. insigne Sanderi and C. Parishii Sanderae, which has been instrumental in producing the fine shape and substance in the beautiful hybrid now illustrated. The colour of the flower has been described as Tea-rose blush with a slightly darker mottling on the lip, which has a thin claret line in front. The upper side of the column is also dark claret colour. Sir George Holford is to be congratulated on his success in improving one of the most useful Orchids for all purposes.

EDITORIAL NOTICE.

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 13.—Through the Mekong Gorges.

ON August 22 I set out for Tsa-ka-lo on the Mekong, nominally six marches. I had by no means made up my mind where to spend the autumn, or by which route to return, so much depended on the local situation; but I had contemplated the long journey via Batang to Tatsienlu, and thence back through Mu-li to Yunnan.

We left A-tun-tzu in the afternoon, crossed the pass, and began the long descent of the wooded ravine which leads to Adong. Such flowers as we saw looked jaded, and a tint, suspicious of autumn, was creeping over the forest; the impression was strengthened by the tasselled fruits hanging from the Lime and Maple trees.

In the evening we reached Adong. Here the road branches; one road goes north, up the valley, to Batang; the other west, down the gorge, to the Mekong. The latter is the road to Tsa-ka-lo, whence another road joins the Batang road farther north.

On August 23 we reached the Mekong in under three hours. The weather was sunny, and the atmosphere in the gorge seemed incandescent. Up on the bare cliffs were a few trees, mostly Junipers. Down below, the only striking plant was the twining Codonopsis convolvulacea, a hideous purplish-lavender atrocity. I have already described it from Mu-li, and the A-tun-tzu plant does not seem to differ from the type. It is a widely distributed plant in N.W. Yunnan.

The Adong gorge seems to have been ground out by glacier streams working in a dry climate; sharp glacier grit would almost certainly be required for such a task. The Mekong-Yang-tze divide, whence the torrent springs, was formerly glaciated, though there are probably no glaciers left in this part now.

The Mekong gorge proved to be a veritable furnace, though we were about 2,000 feet above the river. The dry slopes were well clothed with a variety of thorny shrubs, some of them in flower. Herbs, too, are usually eloquent of the hard life here—prickly, hairy, dwarf, sour-looking creatures, tired of life; or succulent in a nasty, glutinous way. Amongst a good selection of tight little bushes in flower were species of Clematis (tiny white flowers), Berberis, Desmodium, Bauhinia, Aster (ray florets pale mauve), Sophora, Ceratostigma, yellow Jasmine, several Labiatae (genera unknown), and yellow Wikstroemia; whilst the herbaceous harvest yielded Amphicome, a hairless form of Campanula colorata, Allium, yellow Corydalis with pale sea-green foliage, and a very dwarf form of Didissandra lanuginosa. Yet, wherever there was any moisture, shade or no shade, Maidenhair Ferns flourished in happy verdure.

The road up the Mekong to the salt wells at Tsa-ka-lo is decidedly frightful in places, and our journey was by no means without incident.

After halting at the first village for lunch, we learnt that we could not go by the low road, which was partly under water in the summer, but must follow the high road. This would have been a simple matter had we been provided with Tibetan mules, but for our Chinese mules with their pack racks it proved altogether too narrow.

A few miles from the village, at a place where a rock bulged awkwardly, the first accident occurred. Thirteen mules had passed safely; the last one caught the projection hard and jammed his feet into the path on the brink of the precipice. He held on, but the load was tipped out of the saddle and crashed down 200 feet. Luckily it was bedding and clothes, and, though the cradle and a box were badly smashed, little other damage resulted.

The rescuing of the load occupied an hour, and the remaining mules were sent on ahead to a village we could see perched up on the next spur; but by the time we had tied up the damaged load and were ready to start, the men returned, saying it was impossible to get along. There was nothing left but to return to the village where we had lunched, spend the night there, and engage porters over the difficult stretch.

Rain had begun to fall, and it was dark when we reached the village. However, we found good quarters (though the roof leaked badly), and made inquiries about local transport.

The start was tardy on August 24, and it was nearly midday when we got going. The mules carried their packs as far as the dangerous place, and then everything was untied and handed over to our five Tibetans. It required three trips to carry my boxes up to the next village, about a mile distant, and by the time we arrived with the mules it was too late to go on, so we stayed there for the night.

A short march next day brought us to another village, where we rejoined the so-called main road; Tibetan donkeys carried the loads thus far, after which we were left to our own devices. But the road continued almost as dangerous as before and we were lucky not to meet with an accident. In the evening we reached a prosperous village under the limestone cliffs.

Excellent small Peaches were obtained daily in these villages, Walnuts also sometimes; but they were not yet properly ripe. The only vegetables we got were Pumpkins.

Although the rocks down by the river (close beside which we marched for a whole day) were almost bare of vegetation, this was by no means the case at the heights to which the road frequently climbed.

Besides the plants already mentioned in flower, there were bushes of Cotoneaster covered with coral-red berries, a scraggy Rose with clay-yellow hips, Buddleia, Thuja orientalis, Androsace coccinea, a white-flowered Androsace, a rose-pink Lychnis, and a very pale-eyed Myosotis, to mention only a few. Nevertheless, it was right down by the river that I found the most unexpected plant of all—to wit, a Primula (KW 5359), apparently of the Nivalis type; but there was not much to judge by beyond the foliage, for the flowers were long since over, and the capsules so far perished that I had difficulty in securing the merest odd seed or two which had been overlooked at dispersal time. Its chance of germinating is slight. It was a bog plant, but flourished only on the limestone rocks or on sinter terraces built up by streams impregnated with lime. (It was under such conditions that it grew on the red sandstone at Tsa-ka-lo itself.)

The strap-shaped leaves are slightly fleshy, brilliantly silvered with meal beneath, and the plant sends out curious suckers. It always grows in colonies, associated with other bog plants—Mentha, Equisetum, an Orchid (probably Habenaria), Maidenhair Fern, and small, compact bushes of Berberis.

On August 27 we did a long march, as we had already lost much time on the road, and it was dark before we found shelter in a lonely farmhouse.

Two hoary species of Symphytum were conspicuous hereabouts, one with white, the other with blue flowers; but by far the most astounding plant of the arid gorges was a Valerian-like undershrub, with flowers of loud magenta. The perennial rootstock sends up a mass of stems which attain a height of 2 feet or 3 feet, and seems to last for as many years. Big tussocks of the plant grow in the driest, stoniest places down by the thundering river.

The only other plant of note was a third species of Androsace, which formed small cushions, composed of the crowded rosettes, on shaded slopes under bushes, and therefore fairly high up. It was in fruit, and I collected seed of it, as I did not remember to have seen it before; but it is not likely to prove hardier than A. coccinea.

On August 28 we started late, and, being unable to reach Tsa-ka-lo the same day, made a short march; and on the following day we reached our destination, having been eight days on the road.

On the 30th I made the necessary preparations, and on the last day of August we set out for the snow peak called Damyon, situated on the other side of the Mekong. *F. Kingdon Ward.*

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* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17 July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, and April 7, 1923.

GIBBON'S GARDEN AT HAMPTON COURT.

It is not generally known that Edward Gibbon, the great historian, ever showed any taste for gardening; indeed, in his Autobiography he expressly states his disinclination for the practice of country pursuits. Yet he had been country-bred, and after many months of the seclusion of a town life Nature reasserted herself, and he developed what we now call the week-end habit. In 1782 his friend, Mr. W. G. Hamilton, a member of Parliament, popularly known as "Single-Speech" Hamilton, lent him a furnished house close to the Palace at Hampton Court, and opening by a private door into the Royal garden.

I have now before me two bills, probably the only two in existence, which relate to his gardening:—

1 Edwd. Gibbon, Esqr., to Thos. Hurcom 1782 for work don in the Garden at Hampton Court:—

December the 3	£	s.	d.
for 18 Days at 2s. 6d. a Day	2	5	0
1 Load and a half of dong	0	8	0
4 hund. of cabbige plants	0	4	0
Seeds	0	3	0
	£3	0	0

Received March 23d 1783 the Contents of this bill in full and all Demands. Sarah Hurcom, this mark.

2. Mr. Gibbons to Thos. Hurcom.

1783.	s.	d.
1 pint french beans	1	7½
moing the Grass	0	3
nailing the vine	0	6
	s2	4½

July ye 23, 1783 recivd. the Contents in full by me.

The only printed observation relating to his latent gardening tastes, with which I am acquainted, is the passage in a letter to his step-mother, dated May 3, 1786, in which he acknowledges that his Swiss friend, Deyverdun, "has almost given me a taste for minute observation, and I can dwell with pleasure on the shape and colour of the leaves, the various hues of the blossoms, and successive progress of vegetation. These pleasures are not without cares; and there is a white Acacia just under the windows of my library, which in my opinion was too closely pruned last autumn, and whose recovery is the daily subject of anxiety and conversation!"

This, however, was in Lausanne. *R. T. Gunther, Magdalen College, Oxford.*

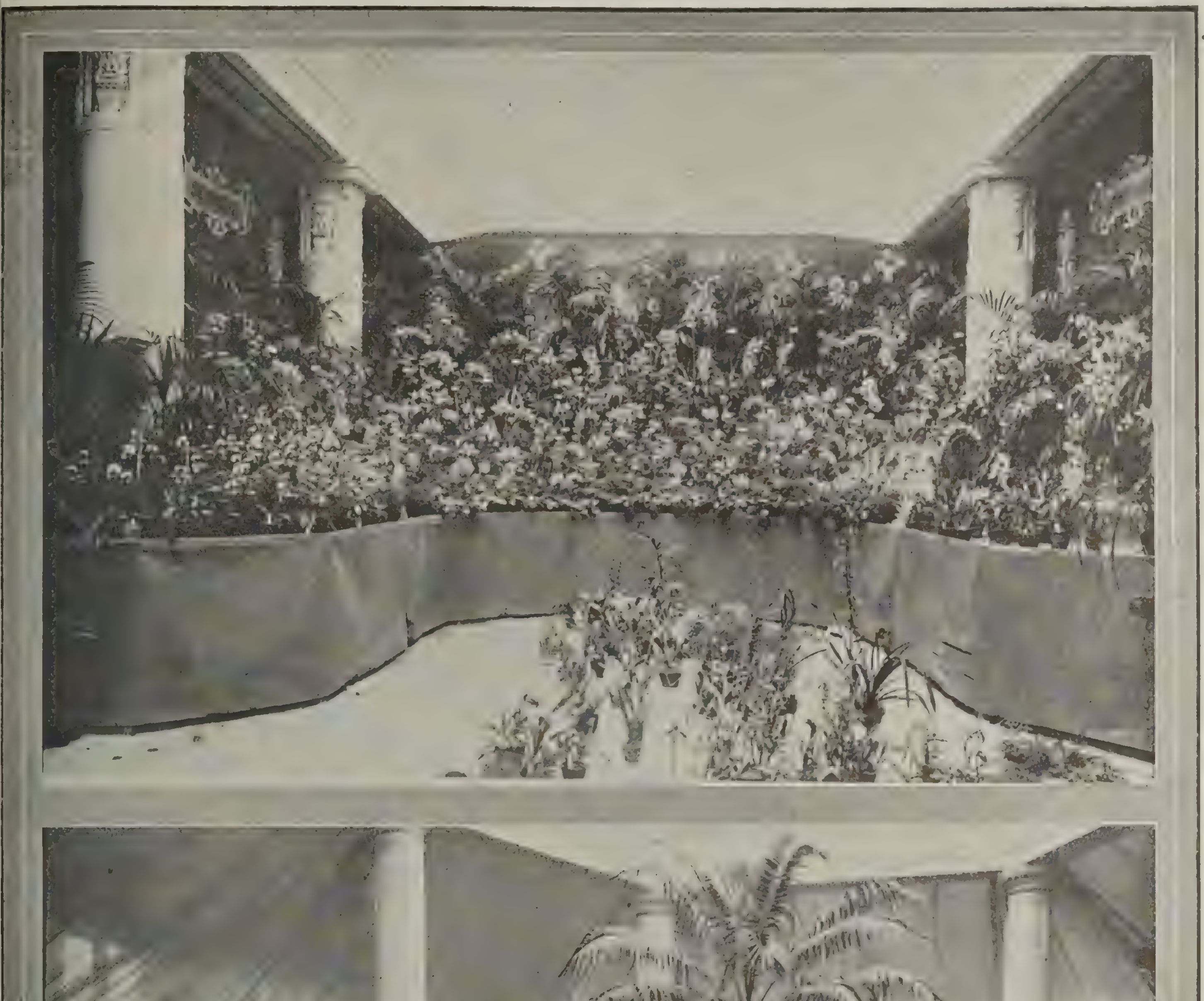

FIG. 97. THE GHENT EXHIBITION.—DR. G. BALLION'S LARGE GROUP OF ORCHIDS IS ILLUSTRATED ABOVE, AND MM. LOUIS VAN HOUTTE'S CENTRAL GROUP OF ORCHIDS IN THE LARGE SALON, BELOW.

GHENT INTERNATIONAL EXHIBITION.

APRIL 14—22.

In addition to the hundreds of exhibitors, nearly three hundred judges met at Ghent on April 14 on the occasion of the eighteenth International Quinquennial Exhibition held by the Société Royale d'Agriculture et de Botanique de Gand. This enormous exhibition, one of the finest of a long series, covers an area of about eight acres, and the display is accommodated in the spacious and stately salons of the Royal Casino, Palais de Fêtes, a huge exhibition building, and in the surrounding grounds.

As is usual in connection with Continental exhibitions, every exhibit has to fit in with a pre-arranged design so that the general effect may be good. Nor is there any real loss of individuality in this method as the large grower fills the bolder positions, but it must be remembered that a small exhibitor may occupy an equally prominent position, such as a small bed on one of the lawns or an important corner site. For the general design of the exhibition M. Henri de Wilde—whose portrait appeared in our issue of April 14—was responsible, and he received many congratulations upon the success of his work. If, as on some occasions, the colours of Azaleas were somewhat crudely associated, that was not M. de Wilde's fault.

Some of the giant Palms seen in other years were absent on this occasion, as they, like many other plants, were lost during the war. Nevertheless, numerous skilful cultivators produced wonderful specimens of stove plants, and the firm of MM. Louis Van Houtte père deserve special mention in this connection, their big collection of Palms, Aroids, Dieffenbachias, etc., being one of the most interesting and striking features of the show. So far as colour is concerned, the main exhibition is the most attractive part, as here are thousands of Azaleas, in all shapes and sizes, in beds and groups of many forms, and presenting dazzling masses of pink, scarlet, crimson, mauve, blush and white. Add to this the long rows of Rhododendrons, great beds of Hydrangeas, and the big vases of many varieties of Lilac and the extraordinary colour effect may be imagined.

We are of opinion that although the present Ghent Show does not fall short of its predecessors in the matter of colour, it is scarcely so imposing and dignified as some we have seen. We refer, of course, only to the effect in the main building, and any apparent loss in this direction is due undoubtedly to the absence of the Giant Azaleas, tree Ferns, Rhododendrons, Acacias and Palms of other years.

Out of doors, along corridors and flanking the flights of steps at the entrances, the big Bay trees are prominent. These are a speciality among Belgian growers, and war conditions do not appear to have affected them to any appreciable extent—there are literally regiments of them, ranging in size from perfect little pyramids a couple of feet high to giants ten or twelve feet high, and standards with heads eight feet or more in diameter. Formal and rock gardens are also arranged out of doors, while the magnificent display of Orchids is accommodated in the warmer salons where also is to be found a capital grouping of Anthuriums, Vriesias, and a very fine collection of well-grown Caladiums.

The Opening Ceremony.

To the City of Ghent, to the Province of Flanders and even to Belgium itself the great international quinquennial exhibitions are of enormous importance, both for the impetus they give to the horticultural trade, and for the social events in connection with them. The city was en fête for the opening of the exhibition; every road and street of importance had its array of flags, and even the trams and the official buildings had their bunting. Brilliant weather attended the exhibition, and the warmth of several previous days brought out the leafage of the Horse Chestnuts, Maples and Poplars, and these added the fresh green of their foliage to the gay scene. His Majesty the King of the Belgians, with Her Majesty the Queen and the Duc de Brabant, attended in state to open the show at 10 a.m. on April 14 (see fig. 98). Many state and provincial and city officials were present in bright uniforms, and there was a military guard of honour. Many thousands of invitations must have been issued for this imposing function, as the attendance was very large indeed. The Royal party was received by the chief officers of the City, State and Society, and there were several speeches having reference to trade revival since the war, and the importance of the horticultural industry to Belgium. After the official opening the Royal party first visited the British section, and was received by Lord Lambourne, Mr. G. Monro, Mr. J. S. Brunton, and Mr. Lobjoit; on behalf of the British exhibitors Mr. Brunton presented a beautiful basket of flowers to the Queen, and then toured the section with the King.

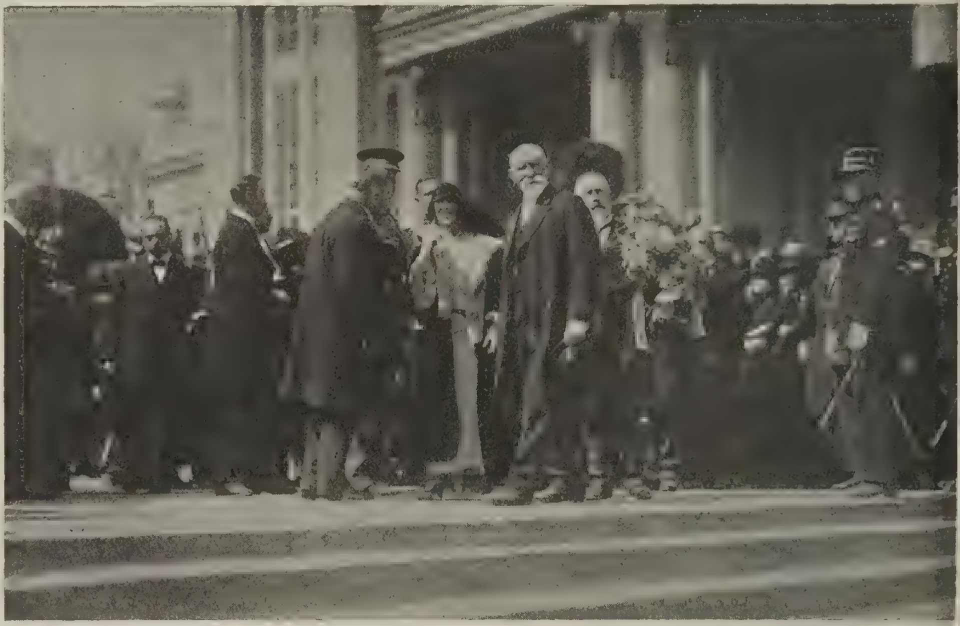

FIG. 98.—THE GHENT EXHIBITION. RECEPTION OF THE KING AND QUEEN OF THE BELGIANS AT THE ENTRANCE, BY THE PRESIDENT, M. ALEXIS CALLIER, AND VICE-PRESIDENT, M. ALBERT CEUTERICK, OF THE SOCIETE ROYALE D'AGRICULTURE ET DE BOTANIQUE DE GAND, ON THE OCCASION OF THE OPENING CEREMONY.

The Jury.

Early in the afternoon of April 13 the judges gathered in one of the halls of the Casino to receive instructions. Nearly three hundred answered to their names. M. Alexis Callier, President, welcomed the jury on behalf of the Société Royale d'Agriculture et de Botanique de Gand, and he was supported by M. Albert Ceuterick, the Vice-President, M. Lucien de Cock, General Secretary, and M. Maurice Duquesnoy, treasurer. To this address of welcome Lord Lambourne responded on behalf of the Britishers; Mr. Ernst Krelage on behalf of Holland; and M. Nomblot, in the unavoidable absence of M. Viger, for France, each congratulating the Ghent Society on its magnificent show and its revival so soon after the devastating years of war.

The various appointments then followed. Lord Lambourne was appointed Président Général of the Judy, with M. A. Viger Président d'Honneur. The Vice-Presidents included Sir Jeremiah Colman, Mr. W. G. Lobjoit, Mr. G. W. Leak, and Mr. J. S. Brunton; and the General Secretaries of the Jury included Mr. Geor Monro, Mr. L. Sander, Mr. W. H. Page a Mr. J. H. Jolis. Besides these the Brit members of the Jury, various Presidents or Sec taries of Sections were Sir Frederick Moore, D A. Hill, Mr. P. C. M. Veitch, Mr. W. Wats Mr. H. J. Pitt, Mr. W. R. Dykes, Mr. H. Jones, Mr. C. Harman Payne, Mr. W. R. Ol ham, Mr. E. A. Bunyard, Mr. Chas. H. Curt Mr. C. E. Pearson, Mr. W. G. Baker, M Stuart H. Low, Mr. J. Gurney Wilson, Mr. H. Smith, Mr. J. E. Shill, Mr. Arthur Turne Mr. John Weathers, Mr. W. E. Wallace, M F. K. Sander, Mr. L. R. Russell, Mr. Jo Cairns, Mr. J. M. Bridgeford, Mr. J. Arlins Mr. J. Collier, Mr. C. Engelmann, Mr. R. Felton, Mr. Alfred W. White, Mr. R. Broom White, Mr. C. M. Matthews, Mr. A. Mer weather, Mr. R. H. Page, and Mr. R. Wallace.

Press Gathering.

One of the most pleasing of the vario functions connected with the exhibition w the luncheon given by the Ghent Agricultur and Botanical Society to the members of t Press; indeed, this was the first of the ent tainments, and took place at 11 o'clock on t morning of Friday, April 13, at the Roy Casino. Nearly forty persons were prese under the presidency of M. Keurvels, preside of the Press Association of Ghent, who w immediately supported by Mr. Charles Curtis and Mr. Charles Pynaert, Mr. Chas. Pearson, and Mr. Gurney Wilson.

M. Keurvels offered a very hearty welco to the pressmen of the various countries presented who had come to report t exhibition and conference. He made spec reference to the camaraderie existing amo pressmen the world over, and to the wonder power journalists held as distributers of formation. He assured the officials of t exhibition that all present had come with t purpose of extending a knowledge of pla and flowers and doing all that lay in th power to encourage the extension of ho culture, and commerce, and increase good w among men.

Mr. C. H. Curtis responded on behalf of o British Press, and on behalf of his nfrères and himself thanked the president r the hospitality received and this early portunity of making the acquaintance of so any journalists of world-wide reputation. He so promised to render any assistance that y in his power to any present who came to ngland, if they would communicate with him the offices of *The Gardeners' Chronicle*. M. uvage responded with his usual poetic oquence on behalf of French journalists, and . Charles Bosschere, for the Belgian Press, ded humour to eloquence. Mr. Gérard Harry sponded for the Dutch Press.

Hearty thanks and congratulations were ered to M. Lucien de Cock, M. Duchesnoy, d M. H. de Wilde, chiefly concerned with e organisation of the exhibition, for the mirable arrangements made and the success ready assured.

M. Pynaert thanked M. Keurvels for his elcome, and all joined in appreciation of the orts made on behalf of the Press by M. mille Verhé, the secretary of the Press mmission of the Floralies.

Various Functions.

The horticultural pressman who attends a ent Quinquennial Exhibition and is a Member the Jury and also a delegate to the Fédération rticole Professionelle Internationale, ardently sires the gift of that power which is said enable one to be in two places at once—one rt to attend to business and the other part attend the various functions which the hospitle Belgians so lavishly provide for the enternment of foreign horticulturists. The followg programme was provided, but we doubt ether anyone found time and opportunity to low it in every detail:—

Friday, April 13.—Press lunch at 11 a.m.; union of Members of the Jury at 2 p.m.; dging commences at 2.30 p.m.; cold collation 5 p.m.; gala performance at the Theatre yal at 8 p.m.

Saturday, April 14.—Official opening of the hibition by their Majesties the King and een of the Belgians, accompanied by H.R.H. e Duc de Brabant; F.H.P.I. Conference at p.m.; official banquet to the Jury at 5 p.m.; ll at the official residence of the Governor of st Flanders—the Comte de Kerchove de enterghem, and the Comtesse Kerchove de enterghem, at 9 p.m.

Sunday, April 15.—Inauguration of the renstituted monument erected to the memory of e late Comte Oswald de Kerchove de Denterem, former President of the Société Royale Agriculture et de Botanique de Gand; recepon by the Chambre Syndicale des Horticulteurs elges, at the Bourse du Commerce, at 12 noon; ficial reception of the Members of the Jury by e Burgomaster at the Hotel de Ville.

Monday, April 16.—Excursion to the Royal ardens at Laeken, and to the Park and useum at Tervucren, by rail and motor cars; ritishers dine together at the Hotel de la Poste 8 p.m., after return from the excursion.

Tuesday, April 17.—F.H.P.I. Conference at a.m., and at 3 p.m.; banquet offered to Inrnational representatives by the Chambre Synicale des Horticulteurs Belges at 6 p.m.

British Section.

Forty-eight hours before the time appointed r judging the exhibition the area occupied by e British Section was merely a stretch of ddish, sandy soil in a big annexe of the huge hibition. Twenty-four hours later the ground lan had been worked out—beds sunk, beds ised, paths prepared, turf laid, and many of e exhibits were well on the way to cometion. By the time the jury met at 2 p.m. Friday, April 13, the transformation was mplete—the desert had been taught to blossom the Rose—and the Britishers had nothing to pologise for, notwithstanding the distance ey had brought all their material.

The ground plan (fig. 99) shows the general esign of the British Section. The central poron was sunk below the general level, with mple paths leading thereto. This area was rassed over, and on the central lawn a very rge bowl-shaped receptacle, raised some 8 ft. above a bed of Primula obconica, was filled with several dozen of the big golden spathes of Richardia Elliottiana, with ample Arum foliage, some blooms of a pale yellow Carnation, and pendant plumes of Asparagus Sprengeri. Set in the same lawn were two large vases of Carnations, half-a-dozen vases of exquisite Rose blooms, and several small vases of Orchids. The two pillars, draped with Smilax, carried large baskets of flowering plants of Orleans and Betty Roses, and their bases were grouped around with. Astilbes.

In the irregularly crescent-shaped beds the pillars supporting the exhibition roof were treated similarly to those already described, while big baskets of glorious Ophelia and Mme. Abel Chatenay Roses, Carnations, Tulips and Anthuriums were well placed, while in the lawn itself were small beds of Erica persoluta, Hydrangeas and Marguerites, with a few splendid specimens of Nephrolepis, all giving ample evidence of British cultural skill. The other large beds were filled respectively with Spanish Irises in great variety, Narcissi of many kinds, rich-hued Crotons, graceful Dracaenas, Stocks, Genistas and Cinerarias.

Mr. C. Engelmann, Saffron Walden, surpassed himself on this occasion. He may have had more Carnations at Antwerp two years ago, but never so many blooms of superb quality. All his flowers were disposed in elegant grey pottery of pleasing design and grouped in three mounds with a few Palms and an edging of Asparagus Sprengeri. We were particularly pleased with the large vases, each containing about fifty blooms, filled respectively with long flowers of Laddie, Cupid, Bona, Dora, Lady Northcliffe, and the darker Tarzan, Nigger, Aviator, Ethel Fisher, Topsy, and Belle Washburn. Mr. Engelmann also showed some exquisite blooms of his yellow variety, Saffron. He was awarded three gold medals, three silver-gilt medals, and one silver medal, as some parts of his group came into the competitive classes.

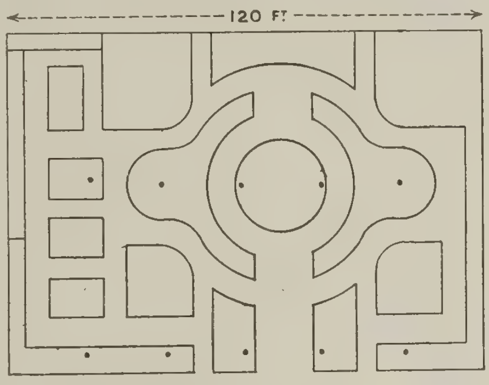

FIG. 99.—PLAN OF THE BRITISH SECTION AT THE GHENT EXHIBITION.

Messrs. Stuart Low and Co. displayed Carnations extensively in vases and stands of varied heights, and a few notable varieties massed in their exhibit were the scarlet Lord Lambourne, the lovely White Pearl, the pink Eileen Low (very fine), Red Ensign, Topsy, and the pale pink Hon. Nita Weir, a novelty of the present year. Several medals also fell to the share of the Bush Hill Park firm.

Messrs. Reamsbottom's bank of Anemones set in green moss was at once pleasing and attractive. The group of Clematis attracted the special attention of H.M. the Queen of the Belgians, who commented on the beauty of the mauve variety, Mrs. Cholmondeley. Other attractive sorts, all of which carried their flowers well, were Lady Londesborough, President, Sir Garnet Wolseley, the lovely white smaller-flowered Miss Bateman, and the larger Marie Boisselot, a very pleasing exhibit.

Close by Messrs. Watkins and Simpson had a rectangular bed of their strain of East Lothian Stocks, which by their colour and fragrance drew the attention of crowds of visitors.

Two large rock gardens, with their backing of dark-hued Conifers, were a delightful relief from the gayer flowers, and also formed a fine background for the central design. Mr. G. G. Whitelegge's exhibit, with its grey stone from the Ardennes, was a carefully restrained effort and a good example of rock garden design of planting. The principal groups of alpines consisted of the dainty Androsace carnea, the golden and true Geum montana, Primula frondosa, Arabis Sundermanni, Æthionema Warley Rose, Saxifraga bathoniensis, Cheiranthus Allionii, Sedum spathulifolium, and yellow Alpine Auriculas.

Messrs. Hayes and Sons, Keswick, arranged a large and bold Alpine garden, but were unfortunate in the stone they had to use, which was far too regular in form to be pleasing. The centre feature was a widening stream of water. Shrubby plants were the chief occupants of this garden, and the Heath, Pernettya, Berberis, Azaleas, and pigmy Conifers attracted considerable attention, the three tiny columnar specimens of Juniperus sibirica compressa coming in for a great deal of admiration. Saxifrages, Irises, and Primulas were used to fill the lower levels of this exhibit.

The British Empire exhibit of fruit proved a great attraction. It occupied a space 30 feet by 6 feet, and Palms, Smilax, and pink Tulips were used sparingly for decorative effect. The fruit was supplied by several English growers, including Messrs. Robert Veitch and Son, Messrs. Rochford, and other Lea Valley growers; by the New Zealand Government, and to a much larger extent by the Trade Commissioner for South Africa. The South African Grapes—Cannon Hall Muscat, Gros Colmar, White Hannepoot, Red Hannepoot, Barbarossa; Pears—superb Josephine de Malines, Winter Nelis, Glou Morceau, and Doyenné du Comice were all extraordinarily fine, and, set up in dark brown baskets 2 feet and 2½ feet wide, with smaller ones in front, made a sumptuous and mouth-watering display. The New Zealand Apples were excellent examples of Cox's Orange Pippin of lovely colour and flavour, and an unnamed rosy-cheeked variety of very attractive appearance.

The exhibit made by *The Gardeners' Chronicle* Co., Ltd., was imposing, and proved very interesting to hosts of visitors. In large frames, about four dozen of the coloured plates issued during the past few years were exhibited on a high background, together wtih a similar number of full-page and other black-and-white illustrations. In the foreground various bound and open volumes of *The Gardeners' Chronicle*, containing illustrations and reports of earlier Ghent shows, were displayed on elegant stands and small easels. Portraits of the founders of *The Gardeners' Chronicle* and successive editors were grouped in the centre around the four medals previously awarded to our exhibits at Continental shows. H.M. the King of the Belgians was very interested in our illustrations of the first Ghent Show, 1809. Miss Winifrid Walker, the floral artist, well known to frequenters of the R.H.S. meetings, brought several dozens of her paintings—an excellent piece of enterprise—and it is to be hoped she received a due reward in purchases. A few of her most pleasing pictures were those of Oriental Poppies, bearded Irises, Roses, Chrysanthemums, Anemones, Rhododendrons, Gaillardias, Clematis, Cyclamen, and Odontoglossums.

Mr. Macdonald, of Harpenden, contributed an interesting exhibit of dried Grasses mounted on specimen sheets.

The Chamber of Horticulture and the Royal Horticultural Society were jointly responsible for the British Section, but the organisation was left in the hands of a special committee, consisting of Mr. J. S. Brunton as chairman, Mr. Jolis as show superintendent, and Mr. G. Monro treasurer, and Mr. C. Matthews, Mr. Alfred White, Mr. H. J. Jones, Mr. C. H. Curtis, Miss M. Ellis, Mr. Garner, Mr. Aylesworth, Mr. W. White, Mr. F. Ladds, Mr. E. Murrel, Mr. R. H. Page and Mr. Vasey.

The awards made to exhibitors in the British Section were as follows:—

Works of Art.—To the Royal Horticultural Society, the Chamber of Horticulture, Mr. G. G. Whitelegg, Messrs. Hayes and Son, Mr. C.

Engelmann, and Messrs. Charlesworth and Co.

Gold Medals.—Messrs. Stuart Low and Co., Mr. L. R. Russell, Mr. C. Bause, Messrs. Cragg, Harrison and Cragg, Messrs. Sanders, and Messrs. Watkins and Simpson.

Large Silver-gilt Medals. — *Gardeners' Chronicle*, Ltd., and Messrs. W. Artindale and Son.

Silver-gilt Medals. — The Spalding Bulb Growers' Association, Messrs. Reamsbottom, Mr. W. Watts (St. Asaph), and Miss W. Walker.

Silver Medals.—To Mr. J. Macdonald, Messrs. Watson and Sons (for new hybrid Cytisus), and Mr. Bunn (for Pelargonium Fascination).

New and Rare Plants.

To many of the English growers the finest Orchid in the exhibition was Cymbidium insigne Bieri, shown by Messrs. Bier and Ankersmit, Melle, Ghent. This lovely variety has flowers of unusual size and superb form. The broad sepals and petals are a charming shade of pink, while the well displayed lip is also pink, freely marked with deep chocolate red and enhanced by the soft yellow crest. It is the kind of Orchid which every member of the R.H.S. Orchid Committee would want to propose a First Class Certificate for!

Very rarely are the filmy Ferns seen in good conditions nowadays, therefore the little closed greenhouse filled with these exquisite plants was a little Mecca for Fern lovers. This exhibit, arranged by M. Arthur de Smet, contained capital examples of Todea superba, Trichomanes radicans dissecta, the rare T. reniforme, and Hymenophyllum demissum. We are afraid many lovers of decorative plants missed this exhibit, as it was in the shade of some big Palms, close to the end of the French section, and as the moisture had condensed on the glass, thousands of folk must have passed it by unnoticed.

Many British visitors to the Ghent Show considered the best "new plant" was Dr. Attilo Ragionieri's giant strain of florists' Ranunculus. Dr. Ragionieri is one of our correspondents whom we have not yet had the pleasure of meeting. A few years ago he sent us some flowers of a new pink Lily-of-the-Valley, but as its journey in the post had not improved it, we were chary of commending it; as shown on this occasion, however. the flowers were distinctly pink, but not so lovely as the best white forms. However, the Ranunculi were the attraction, a small salon was almost filled with the wonderful flowers in a great range of colouring. All the varieties were double and some were fully six inches in diameter and. set on a Begonia plant, would have passed for a very double Begonia bloom. In form, doubling, vigour, interest and effect, these Ranunculi were certainly unusual, and deserved a better position than they had. and also far more space for the display of the blooms. There were few white flowers. but all shades of yellow and gold, red and maroon. mauve and purple, rose, pink, and almost scarlet. The firm which secures this strain for distribution in England—assuming it will grow at home as florists' Ranunculus did in the old days—will deserve well of horticulturists. and no doubt profit by its good deeds.

Oncidium Cavendishianum may be considered a rare plant, though by no means a new one. At Ghent, however, it did not appear to be very rare, as it was shown in several groups of Orchids, but the finest examples were exhibited by M. Jean van de Putte. Meirlebeke. who grouped eighteen plants, each carrying a tall spike of its yellow flowers.

Orchids.

Orchids were magnificent, and no other adjective will serve to denote the extent, beauty, colouring, and high cultivation demonstrated in the many exhibits.

Sir Jeremiah Colman's exhibit merited general approbation, and seven or eight medals were awarded for various plants in it and the group as a whole. Very interesting were the rare species of Orchids along the front of the group, these including Masdevallia trichaete, M. Massangeana, the rare M. deorsa, and M. Chestertonii, and Megaclinium sp. In the main group were some very fine forms of Lycaste Skinneri and the interesting Coelogyne Lawrenceana, Anglocaste Cooperi, and a setting of excellent Cattleyas, Odontoglossums, Cymbidiums and Dendrobiums—a fine display.

Messrs. Charlesworth and Co. staged a beautiful exhibit that was at once attractive and interesting and also contained many varieties. Of outstanding merit were the spikes of their grand strain of Odontoglossum crispum xanthotes, a variety that won great admiration. Odontonia Ceres was shown finely, as well as the newer O. Olivia, of soft golden yellow colouring and scarlet marks on the big lip. Laelio-Cattleya Primrose was a lovely plant, carrying fine flowers, while even more imposing was the particularly handsome specimen of Laelio-Cattleya G. L. Ball, with a tall spike of about a dozen and a half golden flowers. With hybrid Odontoglossums of rare form and colour, and beautiful Odontiodas, the Haywards Heath firm admirably sustained the prestige of British Orchid culture.

Messrs. Stuart Low and Co. maintained their high position as Orchid growers by showing an interesting group, in which we noted Cattleya Cowaniae alba, various finely coloured Odontoglossums and Odontiodas, good plants of Cypripedium Shillianum, and C. James H. Veitch, Bifrenaria Harrisoniae, and Oncidioda Stuart Low.

Messrs. Sander's Orchid group was a forest of Cymbidium spikes, and the grassy leafage of the plants added to this effect. The display included several very large specimens of C. Ceres, C. Ceres magnificum, C. Alexanderi, and the lovely blush-tinted C. A. var. St. Alban with wonderful large blooms. In this interesting group of easily grown and graceful Orchids was also noted C. Yellow Hammer, C. Kittiwake, C. Pauwelsii, C. Redstart of very rich colouring, C. Lonoraie, and several others of the hybrids originally raised in the Westonbirt collection.

An extensive and beautiful exibit of Orchids arranged in a large recess in the salon where the neighbouring plants were all Anthuriums, showed that amateur orchidists are as keen in Belgium as at home. Dr. G. Ballion's plants grown in Ghent, were always the centre of an admiring crowd. Hybrid of the C. insigne section, and hybrids from this useful species provided material for a light and graceful background. The erect or arching spikes in their setting of Palms lent grace and elegance to a very fine display that thoroughly merited the several gold medals it received. C. Alexanderi, C. Sibyl, C. Miranda, and C. Pauwelsii amabile, were represented by admirable specimens, carrying fine spikes of full-sized flowers. Odontoglossums figured largely in the central foreground, and among the many hybrids none stood out so boldly as O. Reine des Belges, with red purple markings on a white ground. Equally well grown were the numerous Odontiodas, among which O. Maréchal Foch, white, blush and red; O. Maréchal Gallien, rose pink; O. "on ne passe pas !!!" white with deep chocolate blotches; O. General de Goutte, with violet-purple margins; and O. Belle France, with a big branching spike of white ground flowers, blotched with scarlet, were conspicuously fine. Some beautiful Cattleyas and Brasso-Cattleyas added fine colouring, while the groups of Miltonias of the M. Bleuana group compelled admiration. Not less attractive to Orchid lovers were the specimens of Cypripedium of the Maudiae type, and the examples of C. beechense, the white C. Boltonii, C. callosum Sanderae, and the old C. Haynaldianum. Mixed with these and other species and hybrids, were spikes of Oncidium tigrinum, and O. Cavendishianum, species rarely seen in good condition in England.

The special prize offered by H.M. the King of the Belgians, was awarded to M. Firmin Lambeau, of Brussels, for a superb display which was, however, rather formally arranged. Nevertheless, each plant could be seen, in its setting of Maidenhair Ferns. Once again Cymbidiums formed the background. Where everything was so good, it was very difficult to select a few for special comment. In making the attempt, however, we give first place to Miltonia Bleuana var. Reine Elizabeth, wi very deep, white flowers of grand form, mark with deep purple on the bases of the two peta and with a fawn-yellow disc. Laelio-Cattle Isobel Sander, with pure white sepals ar petals, and a glorious purple, white-edged ar chrome tinted lip, attracted as much attenti as the Miltonia. The dozen plants of the whi Cattleya Edithae made a group that arous the envy of many Orchid fanciers, while t specimen of Brasso-Cattleya Joan var. aure stood alone in its golden colouring. Concerni the Odontiodas it is difficult to write with straint, as they were so wonderful in colouri and cultivation. O. Chanticler stood out wi its dazzling red-scarlet flowers, and its princip associates with rich colouring were O. Bra shawiae var. Vulcan, O. Rex, of grand forn O. Isadora, handsomely marked with crims on a pink ground: O. Charlesworthii, and t velvety crimson O. Alcantara. Groups varieties of Miltonia vexillaria and M. Bleua were included, as were Odontoglossum eximi xanthotes, Phalaenopsis Rimestadiana a Cattleya citrina.

In one of the large upper salons, Orchids we gorgeously beautiful, as they filled the artis cally handsome and beautifully lighted pla Palms, Tree Ferns, Adiantums, moss and roc were pleasingly associated in the round, cent display, and formed a charming setting for Louis van Houtte's display of Odontogloss eximium xanthotes, represented by about fi spikes of this chaste Orchid. M. Mauri Verdonck's exhibit in this grouping was som what sparsely filled, but it contained so excellent white Cattleyas, Odontoglossums a Odontiodas, but alas, none of the varieties w named! In a setting of rock and green moss Emile Praet showed some pleasing Lael Cattleya of L. purpurata parentage, toget with Cattleya Mossiae varieties, and a f Cypripediums of a type which would not fi favour with British growers.

Laelio-Cattleya Roi Alphonse XIII., glorious Orchid with golden sepals and peta and purple lip, was shown by M. Chas. D trich, Brussels, together with Brasso-Lael Cattleya Cliftoni, Miltonia Bleuana, in gra form, Phalaenopsis Rimestadiana, and a f example of Cypripedium Lawrenceanum, w eight grand flowers.

A big specimen of the old Cypripedi villosum aureum, shown by M. A. Ma Braeckman, Mont. St. Amand, carrying fo teen flowers, greatly interested the older Orc growers, although it would realise a very sm price in these days. M. Janssen's display Cypripedium Maudiae magnificum was grea admired, both for its extent and the excell cultivation of the plants.

For many years past Messrs. Bier a Ankersmit, Melle, have been known as excell cultivators of the fine old Cymbidium Lowian as they invariably show giant plants at spri Continental shows. On this occasion, howev the firm devoted chief attention to Cymbidiu of the insigne group, and showed splendi flowered examples of the various useful hyb derived from this species, as well as good fo of it. With their Orchids they associated fine strain of Clivias, of orange colouring, a in a glass case exhibited the finest form Cymbidium insigne we have ever seen— insigne Bieri.

Stove and Greenhouse Plants.

The collections of stove and greenhouse pla which formerly were imposing features of Ghent Quinquennial, were greatly reduced this last one. Messrs. Louis Van Hout Messrs. F. Sander and Sons, Flandria, a Mr. F. Spae all made highly creditable exhib in this section, and there were smaller efforts the same kind which helped to maintain great reputation of the Belgian nurserymen the skilful cultivation of tropical foliage pla It should be noted that this falling off in inter in tropical gardening is not peculiar to Belgiu it is just as marked in the British Islands, France, and doubtless in Russia and Germa also. The trade with the United States formerly largely concerned with tropical pla

Messrs. VAN HOUTTE's collection was in the
nion of many the best of all the foliage plant
ibits. In variety and in the size and con-
ion of the specimens it equalled any that this
at firm has ever produced at Ghent. It com-
sed most of the exhibition plants of former
rs: Crotons, Dracaenas, Anthuriums, Mar-
as, Bromeliads, Philodendrons, Phyllotaenium
deni, Alocasia Thibautiana, A. Watsoni, the
re elegant of the Palms, including a beautiful
mple of Leopoldinia pulchra, a near relation
Cocos Weddelliana and the source of a
uable fibre in Brazil. Another plant that
od out conspicuously was a short-leaved very
ucous variety of Encephalartos Lehmanni. It
s unnamed, but Mr. Watson identified it as
known as glauca. These two were the
y novelties in Messrs. Van Houtte's great
lection This firm also had a large
mber of economic plants of special interest.
smaller but highly meritorious group
s that shown by FLANDRIA, a Bruges firm
g associated with the superior cultivation of
ve plants This firm also showed a superb
up of Palms in which were large examples of
h rarities as Ravenia Hildebrandtii, Kentiop-
Lindeni, Glaziova insignis and Chamaerops
trix. Mr. F. SPAE showed a superb collec-
n of Palms including distinct varieties of
ntias and a noble example of Livistona
urnouveana which appeared to be the same
what is known in England as L. Gebanga
ssrs. F. SANDER AND SONS confined their
rts in this section to Palms, Cycads and tree
ns. Their Kentias and Phoenix Roebelinii were
fect examples of the best cultural skill, and
ir collection of Cycads was a grand exhibit,
luding as it did large-stemmed Encephalartos,
crozamia, Cycas, Dioon and Lepidozamia. It
gratifying to learn that there is still a demand
good specimen plants of these noble genera.
merly they were largely cultivated in Bel-
m for amateurs in Russia and the United
tes. Dr. Watney is a keen collector of them
cultivates them successfully in his garden at
deira, where the climate is favourable to
m. We may note here the large examples
Phoenix canariensis, Cycas revoluta and
rcraea longaeva from the Riviera shown in
French section.

Bromeliads were shown by several specialists,
most decorative being Vriesias, Billbergias
Tillandsias. The classes for collections of
ieties of Anthurium Scherzerianum were well
ported, Ghent growers continuing to pay
ticular attention to this species which has
n a speciality with them for many years.
ere were also hybrids between A. Andreanum
other species, and some of them bore very
ge fantastically-coloured spathes. We found
hybrid in which A. Scherzerianum was evi-
nt, and so far we believe this species has
used to cross with any except its own
ieties. We saw only one collection of Be-
nia Rex, and a group of B. xanthina × B.
perosa was noteworthy. B. Gloire de Lor-
ne was very effectively employed by the
tch in their great flower garden which occu-
d the central area of the great hall. The
sses for Nepenthes and Bertolonias failed to
aw entries. The groups of Hippeastrum from
lland were attractive features, the quality
the flowers being quite first class. A group
pure whites was greatly admired. The Hip-
astrum cult originated in Holland, Messrs. DE
RAAF, of Leiden, being the first to apply skill
d selection to their breeding and improve-
ent. It may be said that our best English
owers of these plants have little to learn
m the Dutch growers to-day.

One of the most charming of the newer plants
s Dracaena Dermuensis var. Bausei, a group
well-grown examples occupying a conspicuous
sition in the English Section. It is a most
eerful plant to look at, the broad, curved
aves being banded with glistening white on
rk green. It is closely related to Dracaena Lin-
ni, and we believe it was introduced from the
me country. There were many—one might say
ousands of plants—used as decoration, of such
eful things as Cocos Weddelliana, Phoenix
lvestris, P. Roebelinii, Cordyline australis,
ralias, Aspidistras, and Selaginella Watsonii.
Whatever deductions one might be disposed to make from the character of this exhibition, it is certain that Belgium and its gardeners do produce quite extraordinary results with some kinds of plants—Azaleas, of course; the rest of the world cannot compete with them; also Bays, Dracaenas, Araucarias, and, we think we should add, Hydrangeas, seeing how far the Belgians have gone with them. With respect to Palms, Belgium produces them in great quantities, though no better in quality than our best growers do, though they certainly make the running. The art of finding out what conditions answer best for plants worth growing is a valuable one which is not peculiar to any country. Cymbidiums are the latest addition to market growers' specialities, and it looks as if the Belgians are on the track of the treatment that will make the plants as easy as Kentias—easier, perhaps.

Among the non-competitive exhibits, the most noteworthy that come into this section were excellent examples of Anthuriums, grand specimen plants of Stangeria paradoxa, Pandanus Baptistii, and well-grown Platyceriums. These were shown by the Director of the Gardens at Monaco, Monte Carlo.

Both Mr. J. VAN DE PUTTE, Meerelbeke, and Mr. A. DE SMET, Ledeberg, were awarded Gold Medals and first prizes for Anthuriums. Messrs. F. SANDER AND SONS were awarded a Gold Medal and first prize for a group of large Phoenix Roebelinii. Mr. L. VAN HOUTTE was awarded Œuvres d'Art, valued 1,000 francs, for stove plants, and a similar award went to Messrs. F. SANDER AND SONS for Cycads. Messrs. W. WARMENHOVEN AND SON, Hillegom, were awarded the Ker Memorial prize for Hippeastrums.

Ferns.

Tree Ferns were employed mainly in the decoration of the great hall. They have always been conspicuous for size and excellence of cultivation at the Ghent Quinquennials, more so at previous exhibitions than at this last one. Alsophilas, Cyatheas and Dicksonias stood out either singly or in groups above the smaller flowering plants. Most of them were exhibited by Messrs. DE SMET FRERES, Ghent, who were awarded a gold medal and first prize for them. A particularly elegant Tree Fern from the Congo was in Messrs. SANDER AND SONS' group of stove plants. The Fern most in evidence throughout the exhibition was the spurious Adiantum Farleyense, known as Glory of Moordrecht. It is evidently a good-natured Fern, easy to cultivate, and in its large, elegant fronds it has just the qualities that give the right setting for plants that require ground cover. Some grand examples of it were used in this way by Messrs. BIER AND ANKERSMIT, Ghent, to furnish their wonderful group of Cymbidiums, noted elsewhere. Near to them, and shown by the same firm, was a splendid lot of Clivia miniata, as remarkable for the size and very dark green of their leaves as for the size and rich colour of their flower heads. They recalled the group recently shown by Sir George Holford at Vincent Square.

Cacti and Other Succulents.

An exhibit which received considerable attention was a collection of succulent plants from Mr. F. DE LAET, Antwerp, who for many years has been a collector and grower of them. They were arranged on an area covered with sand and rocks in imitation of the desert conditions where Cacti grow wild. They comprised large examples of Echinocactus, Mamillaria, Cereus, Euphorbia, and other genera. A heap of shingle was a very good attempt to show the natural conditions in which the fat little Mesembryanthemums are found. Mr. DE LAET has a large collection of these oddities, and we commend to his notice and study Mr. N. E. Brown's careful monograph of them, which has been appearing for some time in our pages. Agaves and Aloes were among the exhibits in the French Section: probably they came from Algeria. A big bunch of flowers of Strelitzia regina was shown along with them; also a collection of fruits of the Citron family and the highly decorative bunches of fruits of Phoenix canariensis. There was even a full-sized stem of a Banana bearing leaves and a bunch of fruit. The French exhibitors took little pains in arranging their exhibits. It would be startling if one of their collections of vegetables, for example, were to be placed by the side of those periodically set up by Messrs. Sutton and Sons, Messrs. Webb and Sons, Messrs. Carter and Co., or Mr. Vicary Gibbs. The quality was there, but there was no art shown in setting them out for the edification of visitors.

Azaleas and Rhododendrons.

Without any doubt whatever, the Ghent Show of 1923 may be said to be an Azalea show. Azaleas occupied the entire centre, and much of the sides and ends of the great glass roofed hall, and if they were taken out, the exhibition would be poor indeed. The roof of the hall was draped with pale crimson material, but, strange to say, the effect on the colours beneath did not appear to be a disadvantage. It would be almost impossible, without being tedious, to refer to the many varieties that were exhibited. They were innumerable, and yet one may sum them up so far as the predominating colours were concerned, as pure whites, dazzling scarlets, the softest and the deepest of pinks, the deepest of crimsons, clear mauves, and salmons. In addition to these, of course, were numerous variegated or bicolor varieties, in which two or more colours are eye-catching in about equal proportions.

So far as the culture was concerned, nothing but the highest praise would do it justice. Quite tiny specimens in 3-in. pots, up to large bushes and standards, were to be seen, and all simply smothered in bloom. In the great majority of cases, indeed, the plants appeared to be nothing but bloom, so effectively were the leaves hidden by their floral burden.

Not only were single varieties much in evidence in all colours, but doubles and semi-doubles perhaps constituted the great bulk of those shown.

Among varieties that struck us as being particularly fascinating, mention may be made of Daybreak, a beautiful rose-pink semi-double; Blushing Bride, just a soft shade of shell-pink on a white ground; Pink Pearl, deeper and more double; John Llewellyn, salmon scarlet; our old friend Vervaeneana, blush pink with deep rose centre and blotches; and Madame Petrick, deep rose, very effective.

One of the most conspicuous and certainly one of the most attractive varieties was that named Albert-Elizabeth (see Fig. 95), a new one dedicated to their Majesties the King and Queen of the Belgians. It was raised by J. B. HAERENS and HENRI WILLE, Somergem, Ghent, and was awarded the Sander Memorial Cup (see Fig. 94). The groups were very numerous, and while all were meritorious displays of highest horticultural skill, it may not be invidious to mention a few that stood out distinctly, and, as it were, "caught the eye" more quickly than others. The large circular bed of AUGUST HAERENS AND SONS, of Somergem, St. Amondsberg, very worthily secured the award of a gold medal, and this firm won valuable awards for groups in other parts of the show.

Mr. L. VAN HOUTTE was awarded "Œuvres d'Art," valued at 1,000 francs, for Rhododendrons and Azaleas.

L. DE SMET-DUVIVIER, Mont. St. Amand, had a conspicuous lot of Azalea "Magenta," which, with others, obtained a silver-gilt medal.

THEOPHILE PIENS, Melle-lez-Gand, obtained first prize for a very effective group, mostly in 8-inch pots, with an extraordinary number of varieties. The firm of LOUIS VAN HOUTTE, PERE, La Pinte-lez-Gand, put up a very large, and highly attractive exhibit of almost every known variety, and in every size, ranging from 5-inch pots to tub specimens of great size. The exhibit obtained the well-deserved first prize of a gold medal.

MM. BIER AND ANKERSMIT, Melle-by-Ghent, had a very fine display at the side, arranged in an inclined plane, from small specimens at the base to pyramidal standards at the back. ACHILLE DE COSTER, Heusden, Ghent, had a fine group of Vervaeneana and V. alba, for which a gold medal was given.

Besides the Indian varieties, those of the mollis section, although not so numerous or conspicuous as on former occasions, were nevertheless well represented, and were in striking contrast to the other groups. A very effective group was put up by L. J. Endtz and Co., of Boskoop.

A special feature was a variety named Princess Juliana, soft yellow tinged with orange-red, in the adjoining group, by MM. C. Frets et fils, Boskoop. Koster's "Brilliant red", really a vivid orange-scarlet, is a very attractive variety that will find many admirers.

Rhododendrons were not shown in great abundance, and forms of fastuosum seemed to be most conspicuous. Koster and Son, of Boskoop, had several good hybrids, including Mrs. R. W. Wallace, a pure white variety with a few orange spots on the upper petal.

The specimens were well grown and varied a good deal in size, but the mauve masses of colour were in some cases out of harmony with the groups of blue and magenta Cinerarias, and other plants which were used as foils to set them off to greater advantage.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

R.H.S. Reports (see page 206).—It is not surprising to learn that your reporter "fell" in the spelling of Mrs. Heywood Johnstone's name and address. The wonder is that errors of this description are not more numerous. Over quite a considerable period I have been often "intrigued" by the deplorable caligraphy on the exhibitors' cards at the R.H.S. meetings, and of late they seem to be even worse, if possible, than formerly. Nor is the Society's well-nigh indecipherable writing confined to the exhibitors' cards; it extends to the official lists of awards which are posted in the vestibule. And, what is more embarrassing to the visitor, they, every now and then, lead one woefully astray. A short time ago, on the list of Orchid awards there were the names of three genera, written badly and spelt incorrectly, which did not receive awards on that day. At the Daffodil Show last week the usual official list of awards was posted, and it contained, as one of the varieties which had received Awards of Merit, "Miss Helen Hard." The raiser's name for the variety that was undoubtedly meant is Miss Helen O'Hara! *Visiting Fellow.*

Late-flowering Chrysanthemums (see pp. 94, 139, 165 and 166).—*Y. G. and Another Grower* state that Liverpool yellow was registered; we have it catalogued as Golden Glory; is not one name sufficient? I take Liverpool Yellow to be a synonym; we only require the correct name. I have grown Golden Glory since it was sent out; when well cultivated it is six feet six inches in height. Golden King is two feet six inches tall, a difference of four feet. *Y. G.* is very decrial in his statement in his second attempt; he never mentioned that it was classed among the incurved as Golden Glory. I have been a reader of *The Gardeners' Chronicle* for 30 years. He states that he was attending to Baldock Crimson fourteen years ago. Why not study the younger growers who are readers of *Gard. Chron.* and interested in growing Chrysanthemums? As for Bronze Mollie, etc., being in bloom last December. On January 10, 1922, I was cutting blooms of that variety, and I also exhibited it in November, 1921, which was a very dry year. Timing the bud is one of the chief factors in success which all Chrysanthemum growers know. Enfield White is quite distinct from Cheshunt White. *Chrysanthemum Grower.*

——I am obliged to *Chrysanthemum Grower* for giving us a list of up-to-date varieties which are worth growing. I notice that *Y. G.* in his second note does not state that Liverpool Yellow is catalogued among the incurved varieties. There is a difference between Enfield White and Cheshunt White. Pink Pearl is not worth pot room. As for Empire Day, I cannot find such a name. We young readers want to learn about the best varieties, or how are we to take the place of the older growers? *A Young Chrysanthemum Grower.*

SOCIETIES.

LONDON DAFFODIL SHOW.

April 12 and 13.—While the entries in the various competitive classes of the Daffodil Show arranged by the Royal Horticultural Society fell short of expectation, the general quality of the blooms was very high. Although there were blanks where it had been hoped to have had vases of Daffodils, the hall generally was well filled. The large collections of Daffodils which had been exhibited on the two previous days were replenished; a few additional groups were arranged, and many of the miscellaneous collections were left over from the fortnightly meeting. These latter added variety, and, no doubt, gave pleasure to those of the visitors who had not attended on either of the previous days. But the Society made an unfortunate mistake in giving the most important position in the hall to Mr. James Douglas's Auriculas. It was to have been a Daffodil show, yet the first flowers seen on entering the hall were Auriculas, and these were supported by other extraneous flowers. From these remarks it must not be inferred that the plants and flowers other than Daffodils were not worthy of admiration. Such is far from being the case. What we regret is that, in the rearrangement of the hall, these were given such prominent places which certainly should have been occupied by Daffodils.

Trade exhibits contributed largely to the show of Daffodils; a great many fresh varieties were included in them, and there were several additional collections. Messrs. Barr and Sons were again deservedly awarded a Gold Medal for a magnificent group.

Awards of Merit.

Narcissus Beauty of Radnor.—This is a graceful Incomparabilis variety. The perianth is pure white, and the medium-sized corona is lemon-yellow margined with pale orange yellow. Shown by Dr. N. G. Lower.

N. Dainty Maid.—A well-formed Poeticus variety, which has an uncommon flattish corona of lemon-yellow colour edged with buff-orange. Shown by Mr. W. A. Watts.

N. Dinton Red.—In form and purity of perianth this is a model Poeticus variety, and the flowers are held well erect on stout stems. The flattish corona is of fiery orange—almost red—colour. Shown by Rev. G. H. Engleheart.

N. Dulcimer.—This is one of the longest-stemmed Poeticus varieties in cultivation, and the shapely blooms are well set, so that they are displayed to the fullest advantage. The perianth is of milky whiteness and the corona is margined with bright scarlet. Shown by Capt. Hawker.

N. Miss Helen O'Hara.—One of the best of the large white Trumpet Daffodils, and it possesses plenty of substance. The long cylindrical tube has a graceful recurving rim. Shown by Mr. J. L. Richardson.

N. Owen.—A highly decorative Barri variety in which the Primrose-coloured perianth sets off a glowing orange-yellow corona. Shown by Mr. W. A. Watts.

N. Red Guard.—This was the most uncommon of all the novelties. The somewhat star-shaped and long perianth segments are of pale, though bright, buff-orange colouring, while the cup-shaped corona is a vivid orange-scarlet. Shown by Messrs. R. H. Bath, Ltd.

N. Red Rim.—This splendid Poeticus variety has a substantial milk-white perianth of good round shape and a broad, flat, yellow corona definitely margined with red. Shown by Rev. G. H. Engleheart.

N. Wide Wing.—The perianth of this large Poeticus variety is almost paper white. The pale yellow corona has a narrow, but well-defined margin of orange-scarlet. Shown by Rev. G. H. Engleheart.

Open Competitive Classes.

The best twelve Trumpet varieties were shown by Mr. J. L. Richardson, who, besides several excellent seedlings and the new variety Miss Helen O'Hara, included splendid blooms of Lord Roberts, White Knight, and Herod. Dr. N. G. Lower, who was placed secon showed mostly his own seedlings. In the cla for Incomparabilis varieties the first pri was won by Mr. W. A. Watts with prais worthy blooms of such sorts as Storme Juniper, and Peggy. Mr. Richardson was good second, and his best blooms were Gre Warley, The President, and Lady Moore.

The twelve varieties of Barri types we exceedingly beautiful, and the competition f first place was so keen that the judges fe compelled to place Mr. F. H. Chapman a Mr. J. L. Richardson equal. Both exhibito staged many beautiful seedlings. Mr. W. Watts was second, and he had delightful vas of Cherry and Miss Willmott.

The Leedsii division has been divided into tw sections, which are governed by the length the perianth segments. But these were poorl represented.

Although Mr. F. H. Chapman was alone i the Poeticus class, he had a particularly goo collection, and fully deserved the first pri which was awarded. His blooms were ver shapely, and besides several good seedling he showed Valetta and Raeburn.

The following classes required six varieti each of the different divisions. The best sel coloured Trumpet Daffodils were set up by M W. B. Cranfield, and these were larg shapely blooms of unusually rich colourin The very best were Betty and Grenadier. M Chapman was placed second, and in Cinem he showed an exceptionally large flower. M Richardson had the best bicolor Trump varieties, and amongst these he included Mi Helen O'Hara. The first prize bicolor Trum pets, exhibited by the Rev. T. Buncombe, we also especially meritorious. The choicest varieties were Pugilist, Torrington, and Beara. the second prize exhibit, shown by M Cranfield, there was a vase of Cranfiel which has an exceedingly long tube. D Lower, showing especially good seedlings, w placed first for yellow Incomparabilis, and M Richardson was second. Dr. Lower was al first in the class for bicolors and for yello perianth Barri varieties.

The class for large-cupped Leedsii contain many beautiful blooms. Mr. Richardson w first, and he included Lady Millicent Taylo a new variety of great merit, which has widely expanded tube beautifully tinted wi pinkish-buff. Mr. Chapman had the be small cupped Leedsii blooms. The Triandr varieties shown by Mr. Cranfield were pa ticularly dainty and charming. In the cla for doubles Mr. W. F. M. Copeland, who w first, had Silver Rose, Orange Doubloon, a Petronia.

The chief class in the section for new vari ties required twelve varieties not in comme and the first prize included the valuab Engleheart Challenge Cup. This was won Dr. N. G. Lower with a magnificent collectio which included Crucible, a Barri bloo Beauty of Radnor; Delhi, a large orang coloured Incomparabilis; and some excelle seedlings. Mr. Watts was placed second, a his was a worthy collection, in which noticed Enid Dorothea, which has a lar crinkled corona of orange colour, and Glad Bibby, a Leedsii with a lemon-yellow cup. M Richardson, showing seedlings, was first f six varieties, and Mr. Copeland, who includ Inez, a large self yellow Incomparabilis, w first for three varieties.

Dr. N. G. Lower, in addition to winning t Engleheart Cup, won the Gold Medal, offer for the best 12 varieties raised by the exhibito with beautiful seedlings. The best six simil varieties were shown by Mr. P. D. William who included Picador, a most shapely Poetic bloom. There were many exhibits of these vari ties raised by the exhibitor, and in this clas Sir C. H. Cave was placed first. The Novi Class was very popular. Miss Hinchcliff wa first, showing Burgomaster Max, a large bicol Trumpet, and Helga, a beautiful Leedsii.

There was a goodly array of blooms in th classes for one bloom of the different section The principal first prize-winners were Mr. P. Williams, Mr. W. A. Watts, Mr. J. Richardson, and Capt. H. G. Hawker.

The amateurs' blooms were of particular

gh quality, though the competition was not so od as might have been expected. The first ize collection of 24 varieties, arranged by Mr. R. Darlington, was particularly meritorious, d Miss Hinchcliff was a good second. Mr. arlington was also placed first in the class r six Tazetta, and three double varieties.

Major G. Churcher won the first prize in the ass for 12 varieties, with a splendid collection such sorts as Discus, Pedestal and Prince ishimi. In the classes for three varieties of e different divisions Mr. B. Robinson won e first prizes with very meritorious blooms.

The Barr Silver Daffodil Vase was offered for e best collection of 36 varieties, three stems each, representing the different divisions, and as open to all amateurs. It was won by Mr. . B. Cranfield, with a magnificent collection. mongst his Trumpet Daffodils were Monarch, ing Alfred and The Doctor, and his Barri ooms included Firetail, Dorosis and Will arlett.

Two Market Classes were arranged to illustrate e most approved methods of packing high-class affodils for the market. The first class was r six varieties, 12 stems of each, to be judged om the market standpoint. The first prize was on by Mr. J. T. Poupart with a splendid box Trumpet, Barri and Poeticus varieties. Mr. . P. Downer, who was second, packed Trum- ts, Poeticus, Barri and Incomparabilis varie- s. Mr. J. E. Exley was third. The other ass required a market box of Daffodils, as acked for transit, and exhibitors had to de- ver the box of flowers tied, labelled and dressed to the Secretary, R.H.S. Hall, the evious evening. All the exhibits were beauti- lly fresh at the end of the first day of the ow. Mr. J. T. Poupart was first with a box Poeticus Daffodils, Mr. J. E. Exley was cond with King Alfred, and Mr. W. A. atts third with a well-filled box of Leedsii rieties.

Non-Competitive Groups.

Messrs. Barr and Sons placed many fresh ooms in their magnificent and extensive collec- n of the previous show, and added a number new sorts. Prince Fushimi, a Barri with a stinct frilled corona, in which the prominent le orange rim is very fascinating; Scarlet ckade, a large-cupped Barri with a fiery orange rona; and Golden Apricot, an Incomparabilis th a frilled lemon-orange cup, are the names only a few of the beautiful sorts shown in nerous quantities (Gold Medal).

In the group exhibited by the Donard Nur- ry Company the pale yellow-cupped White ar, Market Glory, an Incomparabilis with a llow perianth and a large orange-coloured be, and Festive, a beautiful Incomparabilis of mewhat similar colouring, were very prominent ilver-Gilt Flora Medal). Messrs. J. R. Pear- n and Sons gave prominence to Beersheba, lovely white Trumpet variety, which received Preliminary Commendation, and also displayed any additional varieties cut from home-grown lbs (Silver-Gilt Flora Medal).

Messrs. Sutton and Sons removed their ntre of Freesias and filled the space with ex- llent Daffodils, mostly of Barri and Poeticus rieties possessing richly coloured coronas. iretail, Croesus, Kestrel and Will Scarlett ere very prominent (Silver-Gilt Banksian edal). Mr. J. L. Richardson had an interest- g collection of the various types, amongst hich were many excellent seedlings; Marquis of eadford, a white Trumpet variety; Lord Roberts d Great Warley were very conspicuous ilver-Gilt Flora Medal). Mr. W. A. Watts ustrated the great decorative value of some w sorts which he arranged in quantity. He d large baskets of Owen, Zenophon, a twin- wered Poetaz, Nannie Ellicoat, an Incompara- lis with a long, narrow salmon-pink flushed be, Gladys Bibby, Enid Dorothea, and Pre- ous tastefully arranged. Messrs Warnaar d Co. had a small collection which in- uded Golden Giant, an immense, richly loured Trumpet variety, Red Cross, a large comparabilis with an orange-yellow tipped p, and Expectation, which has a curious little uble-frilled cup (Silver Banksian Medal).

Collections of Daffodils were also exhibited by the Welsh Bulb Fields (Silver-Gilt Banksian Medal); Messrs. R. H. Bath, Ltd. (Silver-Gilt Banksian Medal); Messrs. Cartwright and Goodwin (Silver Flora Medal); Mr. W. F. M. Copeland (Silver Flora Medal); Mr. E. H. Thurston (Silver Banksian Medal); and Mr. W. P. Downes (Silver Banksian Medal).

BRITISH MYCOLOGICAL.

At the March meeting of the British Mycological Society, held at University College, London, Mr. F. T. Brooks, Vice-President, presided. Miss M. H. Carré, Dr. A. S. Horne, Miss H. M. Judd and Mrs. H. S. Williamson gave an account of the genus Eidamia. Messrs. A. S. Horne and H. S. Williamson first described the morphological and physiological characteristics of the two new species of Eidamia and their behaviour compared with that of the type species, E. acremonoides, when grown under similar cultural conditions. One species, obtained from Oak wood, is strongly acidophile and causes colouration of the wood; the other, isolated from decaying Apples, is capable of causing rot in Bramley's Seedling Apple when kept under ordinary storage conditions or at a constant temperature of 1° C. Miss M. H. Carré and Mr. A. S. Horne demonstrated the reaction occasioned by various fungi when grown in soluble pectin of a high degree of purity obtained from Apples. Certain fungi utilise the pectin with production of acidity (Botrytis, Diplodia cacasicola, etc.); the pectin was completely broken down by others with the production of sugar (Apple Eidamia), whilst others were apparently incapable of growth in pectin. Mr. Horne and Miss H. M. Judd stated that the Apple Eidamia, when grown in solution of sugar exhibits, in many cases, different reactions according to the sugar used, as evidenced by emission of odour (Coconut oil smell) liquid colouration and rate of growth (in agar plate cultures containing sugar). The reactions obtained appear to show a definite relation to the configuration of the sugars concerned. Mrs. H. S. Williamson gave an account of an undescribed fungus, "Golden" Oak, a species of Eidamia which caused the production of a yellow colour in seasoned Oak. This colour was produced when normal Oak was inoculated with conidia of the fungus. It was found to be due partly to the colour of the conidia and partly to a yellow refractive substance produced by the metabolism of the fungus and accumulated in some of the cells of the wood.

Dr J. S. Bayliss Elliott and Miss O. P. Stansfield described the life history of Polythrincium Trifolii. The fungus attacks the under surface of Clover leaves producing olive brown to black, cindery patches which consist of punctiform stromata crowded together and gradually coalescing. The conidiophores arise from a plate-like mass of parenchymatous cells, the stroma extending only into the first two or three layers of cells. Attempts to infect healthy Clover plants with conidia failed. The conidial stromata form rapidly and soon become mature. Pycnidia begin to form amongst the conidial structures, appearing shining and black, and lie for the most part under the cuticle of the leaf. The pycnospores are discharged in tendril-like masses. When placed on Clover leaves they germinate and infect the host usually by penetrating the cuticle. After the pycnidial stage reaches maturity, the Clover leaves wither. It was found possible to study the further development of the stromata, however, by laying infected Clover leaves between cover slips or glass slides, and placing between Ivy leaves buried in soil in flower pots in the open. The mature Pyrenomycetous fungus is not Phyllachora, as has usually been supposed, but a species of Dothidiella.

Mr. J. Ramsbottom gave an account of the correspondence of Berkeley and Broome, which is preserved in the National Herbarium. This voluminous correspondence covers a period of upwards of forty years, and gives particulars of the manner in which the collaboration between these eminent workers was carried on; also many facts with regard to mycology in general. It contains a mass of biographical detail more particularly of Berkeley, and gives a much closer picture of the "Father of British Mycology," than do the meagre and misleading biographies which have so far been published. It is of interest to note that Henslow desired Berkeley to succeed him as Professor of Botany at Cambridge, and that he would later have become Professor at Oxford, as successor to Daubeny, but that it was decided by the lawyers that a clergyman was not eligible for the part.

The Rev. P. J. Alexander described the habitats and the period of growth of a large number of Surrey Myxomycetes. So far 122 species have been recorded for the county, and no time of the year is barren of these attractive organisms. Mr. J. Ramsbottom described the proposed mycological exhibit in connection with the Tropical Diseases Section at the British Empire Exhibition (1924), and asked that members of the Society should give what assistance they could in making the exhibit a popular success.

ROYAL CALEDONIAN HORTICULTURAL.

April 3.—The ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on this date, Mr. J. W. M'Hattie, president, in the chair.

A paper was read by Mr. Alex. M'Callum, M.A., LL.B., of the Board of Agriculture for Scotland, on "The Training of the Young Gardener." At the outset, Mr. M'Callum stated that he would treat the subject entirely from the non-professional gardener's point of view. The first questions that occurred to him were—What are we going to train the young gardener for? Is the career proposed for him of such a character as to justify a long course of training?

Owing to high taxation and high costs, luxury gardening could not now have the same vogue as it formerly had in large private establishments, but he could hardly believe that it was altogether a thing of the past, and bad as the present times were, there was hope for a gradual return to more normal conditions. In the big municipalities and in commercial gardening also there seemed to be good prospects of careers for young gardeners. He did not think the theoretical was more important than the practical training for a young man. There were two ways of acquiring a theoretical education. It might be acquired contemporaneously with the practical work, as was the case at the Royal Botanic Garden at Edinburgh, and the Royal Horticultural Society's garden at Wisley, or it might be acquired after the practical work had been learnt by attending full courses of instruction, as at the Edinburgh and East of Scotland College of Agriculture, or the West of Scotland College. Both methods had their advantages.

Mr. M'Callum referred to what was being done by the Research Institutions originated by the Development Commissioners in 1911. Under this scheme fourteen institutes were to be set up, of which one was to be in Scotland and four in Ireland, but since then recognition for other stations in Scotland had been obtained. But all the work which had a bearing on horticulture had been done in England.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this Society was held in the R.H.S. Hall on Monday, April 9. Mr. T. R. Butler presided. Eleven new members were elected. Seven members withdrew interest from their deposit accounts amounting to £21 7s. 6d. The death certificates of two deceased members were received, and the sum of £85 19s. 7d., also £10 each funeral benefits was paid to their respective nominees.

The sick pay for the month on the private side was £112 6s. 5d., and on the State £94 3s. 4d., maternity benefits amounted to £6. Two members received grants of £7 2s. towards dental treatment, and three other applications were considered.

Obituary.

Alexander Welsh.—We regret to record the death, on April 12, at his residence, The Hawthorns, Coldstream, of Mr. Alexander Welsh, of the firm of Messrs. Hogg and Wood, nursery and seedsmen, Coldstream and Duns. Mr. Welsh, who was 74 years of age, was found dead in his bed. He was well-known and highly esteemed by a wide circle of business and other friends. He was for some years a member of the School Board of Coldstream, and he performed much other useful public work. His remains were interred in Lennel churchyard on April 15.

James Russell.—The death of Mr. James Russell, for long a leading member of the Glasgow fruit trade, and a partner, together with his brother William, of the well-known firm of Thomas Russell, Rokeby Terrace, occurred suddenly on the 12th inst. at a nursing home in Glasgow. The brothers retired from the firm a few years ago, but Mr. Russell continued to take a warm interest in the fruit trade of Glasgow. He was for a considerable time treasurer of the Glasgow Fruit Trades' Association, and also held the office of president. A man of thorough business capacity, Mr. Russell was very highly esteemed.

TRADE NOTE.

The Society of Motor Manufacturers and Traders, Ltd., will hold from Thursday, November 22, to Saturday, December 1, 1923, in the recently enlarged Olympia, an exhibition embracing not only the various types of commercial motor vehicles and their components and accessories, but also plant, machinery and materials used in the construction, maintenance and development of roads. It is hoped that the exhibition will afford the opportunity for a full study, on the one hand of the requirements of the users of commercial road transport, and, on the other, of the problems of the road surveyor and engineer in the construction, maintenance and development of roads suitable for the traffic. The exhibition will be divided into four sections:—(a) Commercial motor vehicles and body work; (b) accessories and components; (c) tyres; and (d) road plant, machinery and materials.

INQUIRY.

Can any reader of *Gard. Chron.* inform me of the value of leather dust as a manure, and what results are obtained by its use? This manure was at one time bought by German manure manufacturers. Maybe some other gardeners living in or near large boot factories are interested in this leather waste. *J. E. Fitt.*

GARDENING APPOINTMENTS.

Mr. W. Thomas, for the past fifteen years Gardener to Mrs. Chegwyn, Birklands, St. Albans, Hertfordshire, as Gardener and Bailiff to Miss Stoker at the same place. (Thanks for 2s. for R.G.O.F. Box.—Eds.)

Mr. J. McWhan, previously Gardener to the Rt. Hon. Earl and Countess of Listowel, Convamore, and for the past three years General Foreman at Curraghmore, Ireland, as Gardener to Capt. E. W. S. and Mrs. Foljambe, Osberton Hall, Worksop, Nottinghamshire. (Thanks for 2s. 6d. for R.G.O.F. Box—Eds.).

Mr. Wm. H. Arrowsmith, for the past ten and a half years Gardener to the Marquis of Lansdowne, Derreen, Kenmare, Co. Kerry, as Gardener to the Marquis of Waterford, Curraghmore, Portlaw, Ireland. (Thanks for 3s. 6d. for R.G.O.F. Box.—Eds.)

Mr. A. Corner, previously Gardener to Sir Cecil Newmann, at Cheverells, near Dunstable, Bedfordshire, as Gardener to the same gentleman at Burloes, Royston, Hertfordshire.

ANSWERS TO CORRESPONDENTS.

Names of Plants: *F. F. B.* 1, Juniperus Sabina; 2, Spiraea Thunbergi; 3, Berberis buxifolia; 4 and 6, B. Darwinii; 5, B. sinensis; 7, Daphne Laureola.—*W. H. M.* Rhododendron arboreum.—*J. W.* Libonia floribunda.

Plants of the 16th Century: *C. and Sons.* We know of no modern work on the plants, etc., of the sixteenth century. Reference might be made to Turner's *Names of Herbes*, 1534 (English Dialect Society), and either Lyte's *Nieuwe Herball*, 1578, of which there is an edition without figures, which used to cost two to three pounds, or Gerard's *Herball*, 1597, but these books are very expensive. There is also *The Countrie Farme*, 1600, 1606 and 1616, but that is a translation from the French All the above works contain other than plants cultivated in England, Turner being honest enough to state of such, "Not known in England."

Treatment of Chrysanthemums: *F. B.* If your Chrysanthemum cuttings were inserted singly in small pots filled with sandy soil, and placed in a closed frame, they should be rooted sufficiently for transferring to 4 inch pots in three or four weeks' time. Fire heat is not necessary in mild weather, though a little warmth in the pipes during cold or wet weather will be beneficial. If the plants are in an unheated frame, admit a little air on mild days to change the atmosphere, as all varieties benefit by plenty of fresh air in favourable weather. The majority of Chrysanthemums are hardy, although some of the newer, large flowered varieties are less hardy than others. The compost for the first potting should consist of good turfy soil, mixed with a little burnt earth, sand and leaf-mould. From the 2 inch pots they should be transferred to 4 inch pots, watered through a fine rose, and subsequently watered only when the soil is dry or until the plants have made plenty of fresh roots. A second potting into receptacles 6 inches in diameter will then be necessary, using a slightly rougher compost, and watering the plants carefully as before. The final potting should be done late in June or early in July, using pots 8 inches to 10 inches in diameter. Pieces of rough turfy loam should be used as a rooting medium, adding a little wood-ash, old lime rubble, and a 7 inch potful of bone meal to each barrowload of the soil. Pot the plants firmly when the soil is moderately dry; firm potting is essential to success. Stand the plants out-of-doors in a sunny situation on an ash bottom, or the edge of a walk, say from May to late September, according to the weather. The question of taking and timing the buds is most important if big blooms are required. Early in May, plants that have not been stopped will form several growths; select three and rub off the others. In due course each growth will bear a flower bud; these are known as first-crown buds, and if such buds are not suitable for the variety in question, the formation of second crown buds must be encouraged by rubbing off all but one. Which ever bud is taken, either first or second crown, all the side growths that appear around it should be removed to favour the development of the bud selected for flowering. The plants need copious supplies of water at the roots during the summer whenever moisture is necessary, and liberal feeding later with diluted liquid manure and, if large exhibition blooms are required, sprinklings of artificial fertilisers.

Yew Tree Unhealthy: *J. S. Henley.* The trouble is not due to either insect attack or fungous disease. From the appearance of the leaves and shoots it would seem that the tree is suffering from the drought of 1921. It is possible that the health of the tree will improve this year.

Communications Received.—E. F.—H. F. H.—Anxious—R. S. & Co.—R. M.—L. G. P.—C. E. C.—E. A.—H. A.—F. A. S.—F. H.—A. N.—H. G. T.—A. V.—G. E. M.

MARKETS.

COVENT GARDEN, Tuesday, April 17, 1923.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, bundle	
—Cavaillon ..	2 0– 3 0
—Lauris	2 6– 4 0
Beans—	
—Guernsey, lb.	1 6– 2 0
—Madeirabasket	4 0– 8 0
—Worthing ..	1 3– 2 6
Broad Beans, lb.	– 9– 1 0
Belgian Chicory per lb.	0 4– 0 6
Beets, cwt. ..	2 0– 3 0
Cabbage, tally ..	2 6– 3 6
Carrots, cwt. ..	2 0– 3 0
—New, per bunch	1 0– 1 2
Cauliflowers, doz.	1 6– 3 6
Celery, roll ..	1 3– 2 6
Cucumbers, doz.	6 0– 8 0
—flats	16 0–20 0
Endive, doz.—	
—English.. ..	1 0– 1 6
—French	2 0– 3 0
Greens, bag ..	1 0– 2 0
Lettuce, French	1 6– 2 0
Mint, doz. ..	4 0– 8 0
Mushrooms, lb.	1 6– 2 6
Onions	
English	4 0– 4 6
—Dutch, bag ..	3 0– 3 6

	s. d. s
Onions.	
—Valencia, case	6 0– 7
Parsnips, cwt. ..	2 0– 3
Peas, lb. French	– 8– –1
—Guernsey ..	2 0– 2
Potatos,	
—Canary Island case	10 0–15
—Algerian ..	2– 2
—Guernsey, lb.	0 5–0
—Dunbar ..	£5
—King Edward ..	£3 5–£4
—Others ..	£2 5–£3
Rhubarb, forced, doz.	– 6– 1
—natural ..	4 0– 6
Radishes, doz.	
—Long ..	9– 1
—Round ..	1 6– 2
Savoys, tally ..	5 0– 8
Seakale,	
—natural, half	3 6– 5
Scotch Kale ..	1 0– 1
Spinach, bushel	2 0– 2
Spring Greens, bag.	— 1
Tomatos	
—Canary Islands	30 0–35
—English, per lb	2 0– 2
Turnips, cwt. ..	2 0–

Remarks.—Increased supplies have been availa during the past week, and a generally brisk has prevailed. Shipments of Apples from Austra and New Zealand have been heavy, but unfortunat supplies from New Zealand have, on the whole, be out of condition, a considerable proportion showi waste. Fruit from South Africa now consists large of Grapes, Pears, and a few Apples. For the seas of the year there are large quantities of English App on the market, and though the condition of the fru is variable, for those of first-class quality firm pri are being obtained. Forced Strawberries are sligh cheaper, and the first home-grown Black Hambur Grapes have arrived. The season's earliest picking English Gooseberries were marketed to-day (Tuesda Forced Rhubarb has been quoted very low inde owing to absence of demand, but a temporary short has at the moment hardened values. French Be and Guernsey Peas have been in good demand, there is now a slightly easier tendency for th vegetables. Supplies of New Potatos from Guerns Jersey and Scilly Isles have increased, and their pri are lower. English Tomatos are increasing in quant but their prices are maintained. Green vegetables plentiful and cheap. Root crops are in excess the demand.

Plants in Pots, etc.; Average Wholesale Pric

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz. ..	10 0–18 0
—elegans ..	10 0–12 0
Aralia Sieboldii..	10 0–12 0
Araucarias ..	30 0–48 0
Asparagus plumosus ..	12 0–15 0
—Sprengeri ..	12 0–18 0
Aspidistra, green	48 0–72 0
Asplenium, per doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Azaleas, 48's per doz.	30 0–48 0
—60's	18 0–24 0
Cacti, per tray, 12's, 15's ..	5 0– 7 0
Cinerarias 48's per doz. ..	15 0–18 0
Crotons, per doz.	30 0–42 0
Cyclamens, per doz.	12 0–18 0

	s. d. s.
Cyrtomium ..	10 0–1
Erica melanthera	
„ 48's per doz.	24 0–
„ nivalis 48 „	24 0–
„ 60 „	10 0–1
„ Thumbs „	6 0–
Genistas 48's per doz. ..	15 0–
Marguerites, per doz.	18 0–
Nephrolepis, in variety ..	12 0–1
—32's	24 0–
Palms, Kentia ..	24 0–
—60's	15 0–1
—Cocos ..	24 0–
Pteris, in variety	12 0–
—large 60's ..	5 0–
—small	4 0–
—72's, per tray of 15's ..	3 0–

CUT FLOWERS.

Remarks—Trade is, on the whole, on the q side. Carnations are plentiful, and Roses are ar in larger quantities daily. Richardias (Arum Lil Liliums, including L. formosum, have been in price the past few days. Very few Violets obtainable, either single or Neapolitan. Irises in and mauve colours are coming from Guernsey freely, but very few yellow or white blooms are yet. This morning (Tuesday), good Daffodils were firmer in price, stocks of several varieties being fin There is a brisk trade in hardy plant roots.

SCHEDULES RECEIVED.

Burnley and District Horticultural Societ—Eleventh annual show, to be held in Cronke Meadow on Saturday, August 18.—Secretary, Mr. Ar Eastwood, 59, Ennismore Street, Burnley.

Guildford and District Gardeners' Assoc tion.—First annual show, to be held on Wednes July 25, in the grounds of Stoke Park Prepar School.—Secretary, Mr. E. Sawyer, 30, Recreation Guildford.

THE
Gardeners' Chronicle
'o. 1896.—*SATURDAY, APRIL* 28, 1923.

CONTENTS.

)ples, Pears and Plums, manurial treatment of 232
rmingham Daffodil Show 224
'itish tribute to Belgium's unknown soldier. 224
)pper sulphate as a tree cleanser .. 232
rnery, the—
A fine hardy Maidenhair 225
reign correspondence—
Different systems of growing Cyclamens 225
restry—
Old and new Coniferous trees .. 228
Gardeners' Chronicle" seventy-five years ago 225
rdeners' wages .. 232
ent Show 223
rdy flower border—
Herbaceous Paeonies 229
Stylophorum diphyllum 229
rticultural Club .. 224
Imperial Fruit Show .. 223
Indoor plants—
Eucharis 231
Ruellia macrantha .. 231
North of England Tulip Society 224
Parks and open spaces, public 227
Plants new and noteworthy—
Rhododendron obtusum album .. 227
Rose growing 223
Rubber, wonderful .. 228
Societies—
Ghent Quinquennial.. .. 223, 233
National Rose .. 236
Royal Horticultural .. 237
Switzer, Stephen .. 230
Vegetable garden—
Runner Beans .. 232
Week's work, the .. 226
Welsh garden, notes from a 230
Wireless lectures on gardening 232

ILLUSTRATIONS.

'itish horticulturists at the grave of Belgium's unknown soldier.. 224
ıcharis grandiflora, well-flowered plants of 231
ɒent Exhibition: views of the 235, 236
ırcissus Brimstone 225
ıododendron obtusum album 227
ubber trees, a plantation of, 228; suitable for tapping 229

VERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 48.7°.

CTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 25, 10 a.m. Bar 29.7, temp. 49°. Weather—Rainy.

Ghent Show, 1923. Although we still hold the previously expressed opinion that the Ghent Show of 1923 was not so imposing as cer-ain of its predecessors we have been privi-eged to attend, a careful inspection of the reat exhibition conducted during the course f several days leaves the impression that ıe Société Royale d'Agriculture et Botanique e Gand has every reason to be satis-ıed with the first post-war exhibition. We ffer further congratulations to M. A. Cal-ier, M. Albert Ceuterick, M. Lucien de Cock, M. R. Delmotte, M. Maurice Duques-oy, and M. H. de Wilde, the chief officials of he Society, upon the great success achieved, nd we hope that the great show will be the neans of stimulating commercial horticul-ure, not only in Belgium, but in the other ountries represented at Ghent. The crowds f visitors to the Ghent exhibition were xtraordinary in their size, orderliness and en-husiasm, for it must be remembered that here were no side shows or amusements of ny kind, though good music was provided. The fine weather with which the exhibition vas favoured broke on the last day, Sunday, April 21, and the rain, although not very eavy, continued from early morning; this, erchance was not altogether unfortunate, s it reduced the crowd to manageable proportions, whereas the officials were rather dreading the crush on closing day if fine weather continued. Considering the excellent organisation of affairs, and remembering the warm-hearted hospitality of our Belgian friends, it may seem ungracious to offer criticism, but, we venture to hope that on future occasions some method of dust prevention will be found, that the awning beneath the roof of the great building will be of softer colouring, and that one room or part of the show will be devoted exclusively to the display of new plants and flowers, no matter whence they come. We would also like to see more comfortable arrangements made for the foreign Pressmen, and in making this observation, we are not unmindful of the poor accommodation we at home provide for the Press. For the purpose of encouraging horticultural inclinations, the Ghent Society invites school children to attend early in the morning on several days, and offers especially easy facilities for scholars in the higher schools and colleges to attend. On one morning, Wednesday we believe, many thousands of scholars from elementary schools visited the exhibition and passed out again before 9 a.m.! Ghent Show gave a wonderful demonstration of the length of time flowers and flowering plants will remain in good condition if supplied with water but not disturbed. The British section looked almost as well on April 22 as an April 15, and throughout the whole period it was thronged with admiring visitors. Hundreds of thousands of people visited Ghent Show notwithstanding the raising of the price of admission during the closing days—for instance, from ½ franc to 2½ francs on the closing day. We sincerely hope the takings were satisfactory during the nine days the show remained open to the public; the price of admission on the first day was 25 francs, which was about equivalent to 6s. 3d. in English.

Rose Growing. All growers of Roses, whether experienced or inperienced, will derive profit from the study of the series of short articles by well-known experts on the preparation of Rose beds on various soils, and published in the *Rose Annual* for 1923. The introductory note by Mr. E. J. Holland, past president of the National Rose Society, contains much wisdom in small space. The optimistic spirit in which it is written is, we are confident, justified, for, like Mr. Holland, we have seen Roses flourishing in soil which the exacting would condemn as unfit for the purpose of a Rose garden. Particularly would we commend his injunction to plant firmly—many a failure with Roses and plenty of other plants being traceable to neglect of this precept. Moreover, firm planting means staking also, for there are few soils and fewer newly-made ones which even when plants are firmly set in it does not shrink and stretch and encourage that "riding" of plants which is so inimical to their establishment. Having read the introductory notes, the student will do well to turn to the last of the series of articles by Mr. H. R. Darlington, not because the others are not equally illuminating from the practical point of view, but because Mr. Darlington envisages the problems of the preparation of Rose beds from a more general point of view—writing, as it were, and very wisely, on the philosophy of Rose-bed making. He points out that the two prime considerations which enter into the preparation of the ground, are depth of drainage and depth at which manure is placed, and that the two go together for the reason that undrained ground means airless ground, and in airless ground manures do not decay properly and yield up beneficial ingredients, but remain sour and do harm and not good. Therefore the manure added to the Rose bed must be at no depth greater than that to which air may freely circulate. Evidently this depth is not absolute, but is determined among other things by the amount of working by hoe and light fork, which the top soil receives. It is determined also in the case of heavy soils by the extent to which lime and manure in the middle layer of the soil keep down the stickiness of the soil. Amateurs are apt to do much harm to their Rose gardens by planting other things which, though delightful in themselves, prevent the working of the top soil at times, e.g., spring, when most good may be done. One of the experienced contributors to the series, Mr. W. E. Moore, who gardens on an exposed site 600 feet above sea level, has to resort to mulching in winter, but most Rose growers will do well to get the soil rough in autumn by careful digging and to leave it to the weather. Many growers mulch too soon and too much. Any mulch on a much compacted soil put on early in the year is likely to do more harm than good, and for our part we prefer to put the manure a little below the surface and to rely on the hoe for making a soil mulch. Nevertheless when wet weather comes, as it sometimes may in summer, a light strawy mulch is of the utmost benefit. The introductory note already referred to rather condemns the use of artificials in the early stage of the Rose bed, but for our part we think it good practice always when adding farmyard manure, to dust it with a little basic slag, a manure which is slow acting, contains lime, and yields up phosphates so beneficial to strong root growth. Of all those who take part in this symposium, Mr. Oppenheimer is the one whose Rose lines appear to be cast in the least pleasant places—three kinds of gravel constituting the staple of his garden soil. After very thorough preparation of the beds, he had high hopes of the Tea Roses, but the hopes were not fulfilled, nevertheless other Roses succeeded admirably, including Red Letter Day, Captain Haywood, Irish Fireflame, Ophelia, Nellie Parker, Lady Alice Stanley and Mrs. John Lang. Growers whose soils resemble those worked by Mr. Oppenheimer, would do well to consult his list of failures and successes. One general observation is called forth by a study of these excellent articles, and that is that none of the writers so far as we have noted, has anything to say of different soil requirements which different Rose stocks exhibit. Yet undoubtedly the different stocks used are distinguished by different soil preferences, and it is probable that the common Briar stock is by no means uniform in its rooting habit. From what we know of fruit trees and Crab and other stocks, it is to be expected that by greater attention to this quesion, stocks specially suitable for Roses on the lighter soils might be discovered and brought into general use.

Imperial Fruit Show, 1923.—The Imperial Fruit Show, which, as we have already announced, will be held in the Belle Vue Gardens, Manchester, from October 26 to November 3, will include special sections arranged to provide local competition within the county of Kent; within the eastern counties, and within the west-midland counties, and general competition in two other sections, *i.e*, the Great Britain section and the British Empire section. New features will be introduced, including exhibits of Potatos, and flowers in season at the time the exhibition is held. A guarantee fund has been opened, and amongst the principal sums guaranteed are £500 each from the National Federation of Fruit and Potato Trades Associations; the Association of Fruit Brokers, Manchester; the Manchester and District Fruit Buyers' Association, and the Manchester Markets Committee; £250 from the Manchester Ship Canal Co.; and £100 each from Mr. George Swift, J.P., the Manchester Smithfield Market Tenants' Association, Mr. Joel Goodwin, the Liverpool Wholesale Fruit and Potato Merchants' Association, Mr. F. R. Ridley, Messrs. Dingleys, Ltd., Mr. Wm. Nicholls, the National Federation of Retail Fruiterers, Florists and Fishmongers, Ltd., the London Fruit, Flower and Vegetable Markets' Association, and the Royal Horticultural Society. An appeal is made for subscriptions to the show funds, and also to the prize fund. The following special prizes have been offered: Messrs. Abol, Ltd., two pieces of plate; Messrs. Coupe and Sons, one cup and one bowl; the Humber Fruit Brokers, Ltd., piece of plate valued £25; Messrs. McDougal and Yalding, four cups; Mr. E. R. Roach and London Fruit, Flower and Vegetable Markets' Association, five cups; Messrs. Dingleys, Ltd., gold cup, valued £50; Mr. Geo Swift, J.P., a cup; and *The Fruit Grower*, medals. The Secretary is Mr. J. F. Tamblyn, 18, Bedford Square, W.C.

North of England Tulip Society.—The annual show of the Wakefield and North of England Tulip Society will be held at the Brunswick Hotel, Wakefield, from May 12-15. The Northern Tulip show, which, until recently, was held at Middleton, is now incorporated with the Wakefield and North of England Tulip Society. The schedule includes nineteen classes, in three sections. A silver challenge cup is offered for the best exhibit of nine Old English Tulips.

"The Gardeners' Chronicle" and the Ghent Exhibition.—Our Continental readers, as well as British friends who remained at Ghent until the closing days of the great exhibition, were surprised to find *The Gardeners' Chronicle* of April 21 at our exhibit on that date, with a report and illustrations of the show. Our Belgian friends were very interested over this rapid transmission of news, and return of printed matter, and appeared to be under the impression that we had used the air service both ways. This was not the case, however, but we had made arrangements which left no margin for errors, and fortunately they were all carried out. The congratulations we received upon this achievement in horticultural journalism were very pleasing, if somewhat embarrassing.

British Tribute to Belgium's Unknown Soldier.—Belgium's "unknown soldier," who fought and fell during the great war in the cause of liberty, has a fitting and noble resting-place in front of the elegant Colonne du Congrès in Brussels. As a token of sympathy and respect, the British horticulturists present at the Ghent International Exhibition contributed to a handsome floral wreath designed and made by Mr. H. Jolis, and this tribute was placed on the grave by Mr. W. G. Lobjoit, Controller of Horticulture, and Mr. J. S. Brunton, Chairman of the Exhibition Committee of the British Section at Ghent, on the occasion of the excursion to Brussels, the Bois de Cambre, the Forêt de Soigne, Laeken, St. Hubert, and Tervueren, on Monday, April 16. Our illustration (Fig. 100) depicts the ceremony. The Dutch and French horticulturists also paid similar homage to the "great unknown."

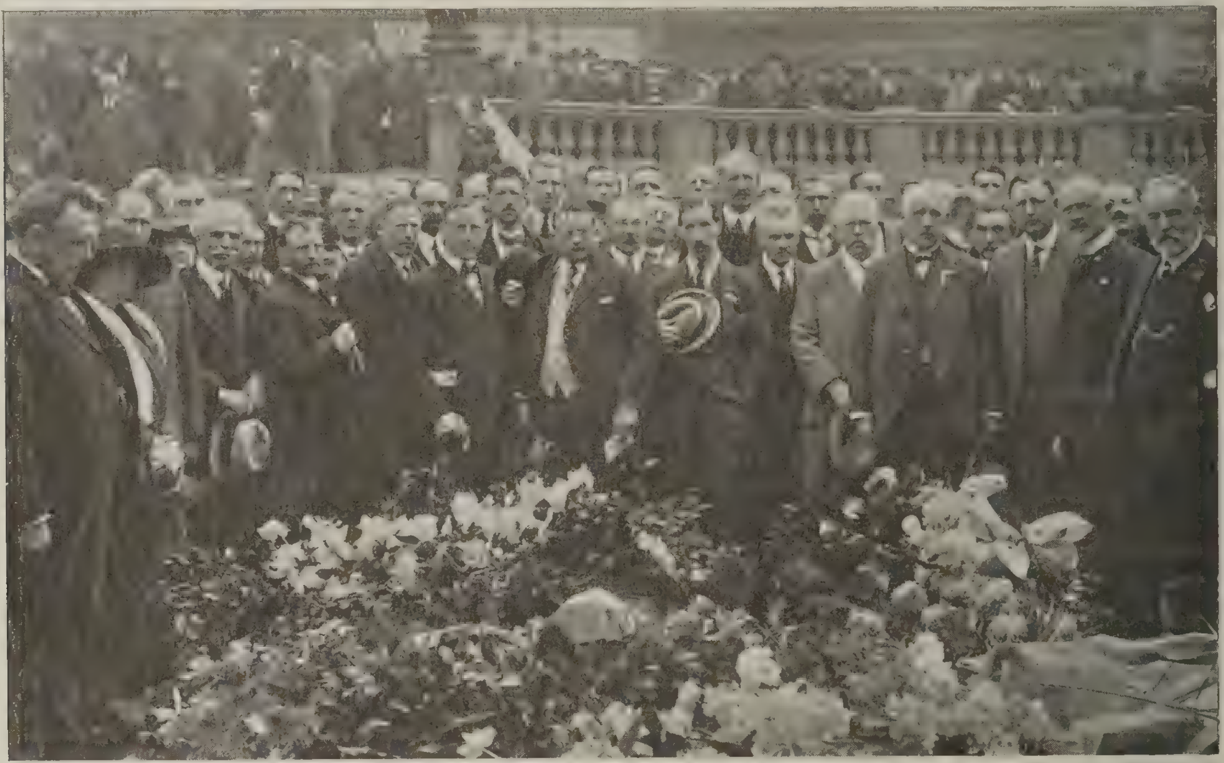

FIG. 100.—THE GHENT EXHIBITION: MEMBERS OF THE BRITISH DELEGATION AT THE GRAVE OF THE UNKNOWN SOLDIER, BRUSSELS.

Horticultural Club.—The annual meeting of the Horticultural Club will be held at the Connaught Rooms, Great Queen Street, W.C., on Tuesday, May 8, at 6.15 p.m. A dinner will follow the meeting, and subsequent to the dinner Mr. F. Kingdon Ward will deliver an address, illustrated by lantern slides, on his recent plant-collecting expedition in Asia. Non-members desiring to be present at the dinner and lecture are requested to communicate with the Hon. Secretary, Mr. G. F. Tinley, 855, London Road, Westcliff, Essex.

Birmingham Daffodil Show.—Great success attended the exhibition of the Midland Daffodil Society, held on April 18 and 19, in the Edgbaston Botanic Gardens. Competition in the various classes was good, and several fine novelties were forthcoming, four of which received Awards of Merit. The variety Brimstone, illustrated in Fig. 101, received a Preliminary Commendation. The annual meeting of the Society was held on the first day of the show, and on the same evening there was a gathering of Daffodil enthusiasts at the Gra Hotel, Birmingham, when Daffodil matters w informally discussed. A detailed report of exhibition will be published in our next issu

Appointments for the Ensuing Week.—Tu day, May 1.—Cornwall Daffodil and Spr Flower Society's Show; Somerset County Ag cultural Association's Show (3 days); Sev oaks Gardeners' Chrysanthemum Society's me ing; Royal Caledonian Horticultural Socie meeting. Wednesday, May 2.—Lewes and D trict Horticultural Society's meeting. Thursda May 3.—Manchester and North of Engla Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Ye Ago.—*The Walcheren Broccoli, or Cauliflowe* This is unquestionably one of the most use members of all the Brassica tribe, and in th days, when, by the exercise of a little care a judgment, Broccoli may be obtained nearly, not all the year round, the Walcheren is a m valuable acquisition towards the attainment this object. From its general appearance t variety is often designated a Cauliflower, a certainly the line of demarcation between Br coli and Cauliflower is difficult to define. Walcheren, however, has a hardier constituti both with respect to enduring drought a frost, than a Cauliflower. I am acquainted wi a garden which, during a number of yea seemed incapable of producing a creditable Ca flower for table; the circumstance was attribut to the fact of its being very old garden groun however, the same garden produced admirab Walcheren Broccoli side by side with Asia and London Market Cauliflower, and ha number of good, close, white heads, three in circumference from it, while the latter w little more than half that size. From the th to the fourth week in April has been fou to be the best time to begin sowing; fr thence a small sowing about every three wee should be made, until the end of July, wh with care will give a supply until the end January following; and sowings made in t end of August and beginning of September, a wintered in frames or under hand lights, w be found useful both for table or for see *J. H. April* 19. *Gard. Chron. April* 2 1848.

THE WINTER OF 1922-3.

IT is probable that winters like that of 922-3 have occurred previously, but I cannot ay that I recollect one so mild. The thermometer seldom registered less than 40°, and usually was higher by a few degrees, while here was no frost save on one occasion, when he temperature sank to 22° early in the night, but it had risen before morning. Then here was only one snowstorm, which here was ver and the ground again black in the course f twenty-four hours. As to rain, it may be aid we had practically none in the three months previous to February, when 4 to 10 nches were registered; January 0.90 inch and March 0.60 inch. Generally there has been n absence of sunshine until recently, when he weather has been quite summer-like.

It might have been expected that spring owers would have been earlier than usual, but for the very early flowers that was not he case. However, we have reached a stage when flowers are coming on with a rush, nd the main display of Narcissi will be over much earlier than usual. Apricots again were ate, but with plenty of blossom, and Plums, fter such an abnormal year's crop as last, re particularly thickly clothed with flowers f good quality. Of Roses there were flowers to be had up to February, when the wet put n end to buds opening. Similarly with Car-ations and Dianthus Allwoodii, blooms of which were cut out-of-doors up to the end f January. No progress was made for the ext two months, but good flowers of the last-amed are again to be had.

When clearing up at the end of the season, vase furnished with Zonal Pelargoniums and he Ivy-leaved Pelargonium Mme. Crousse was left; the plants remained fresh and have started growing anew. Verbena chamae-raefolia has also survived the winter, nd some plants of Teucrium frutescens planted wo years ago have come through unscathed, though I have had it killed in a cold pit. These are instances which show that it is worth while to set out tender plants, which may survive moderately cold winters, even though they are killed in hard ones. Iris nguiculata, which in different spots flowered last season continuously for six months, has roduced one only flower this, and that at he end of March. Similarly, Laurustinus owered abundantly for eighteen months on nd, winter and summer, yet the bushes pro-uced only a few straggling cymes this year. Many deciduous shrubs retained their foliage hrough the winter, and of weeds I have found Nettles with last year's growths fresh, and in March Scurvy Grass was in full flower.

But it has been a winter not to be again esired for vegetables. Brussels Sprouts were ast quite six weeks earlier than usual, and avoys have generally been a failure. On the ontrary, Globe Artichokes have retained their foliage and even attempted to produce heads, a happening I have never seen previously.

Again, hardy fruits have been exceedingly isappointing, and Pears more so than Apples. It began with William's Bon Chrêtien, which ever ripened, but rotted from the centre outwards. The same thing happened with later arieties, Doyenné de Comice being perhaps ffected worse than any other variety. It was, indeed, rare to find a fruit that was atable; small varieties like Winter Nelis were fairly good. Quantities of Apples were ost from the same cause, only it was not so pparent in these as in Pears, because fruit externally to all appearance perfect, when cut, was seen to be rotten internally. Bismarck was perhaps the variety that of all others exhibited this condition the worst, and I think he most of these were lost. Late, hard varie-ies, such as Northern Greening, have not been affected at all.

Some of the old saws have been somewhat unkindly dealt with. The crop of Haws was enormous, and yet "Many haws, many snaws," has not been verified. Similarly, with Holly berries, believed to be a certain forerunner of a severe winter when abundant. The feathered creation barely touched them until after the New Year. *R. P. Brotherston.*

FOREIGN CORRESPONDENCE.

DIFFERENT SYSTEMS OF GROWING CYCLAMENS.

THE greenhouse Cyclamen responds to several different methods of treatment, and just as good plants may be obtained from one method as from another. I have grown plants of Cyclamen in a cold frame on an ash base with excellent results. Some of the plants I grew one year in England, each grown in a six-inch pot, had over ninety expanded blooms at one time. This was at Easter-time. Different soil mixtures may be used for growing Cyclamens. The plants referred to were potted in a mixture of loam, leaf-mould, sand and decayed cow manure: they were potted firmly, and there certainly was no cause to complain of the results. It is always interesting to try other methods. Here we have used a mixture of leaf-mould, peat moss soaked in manure, water, sand and a little light soil from decayed vegetable matter. The plants were potted very lightly, and again we had splendid results. These latter plants were grown plunged in a bed of leaves and stable manure having a temperature of 50°-55°. This method is more expensive, but as a compensation the plants grow very quickly, and therefore are in bloom early in the autumn. With careful watering, airing and shading the plants grow large and sturdily.

Another good system of culture is to plant them free in a frame, using light soil and moderate heat; for instance, after a crop of vegetables has been forced in the same bed. I saw a batch of plants last autumn grown in this way. They were potted in September in 7-inch and 8-inch pots, and made splendid specimens. I intend to grow Cyclamen this year by these three different methods, and I shall see that all three batches are treated in the best possible manner. I will write later and state which succeed best. In conclusion, I may state that the most important point in the culture of Cyclamen is to procure seed of the best possible strain and sow it early, *i.e.*, the second week in August, grow the seedlings on without a check until flowering time, and in a temperature of 50° to 55° in winter. We are just potting our seedlings from boxes into 2½-inch pots, and most of the plants have four or five leaves. Care should be taken not to pot them too deeply; in the final potting half the corm should be above the soil, as they are liable to damp in the winter. Syringe the plants lightly three or four times daily in bright weather and shade them lightly. Remove the lights on all fine nights, as the heavy dews are beneficial and natural to the growth of this most useful of winter-flowering indoor plants. *James Page, Sweden.*

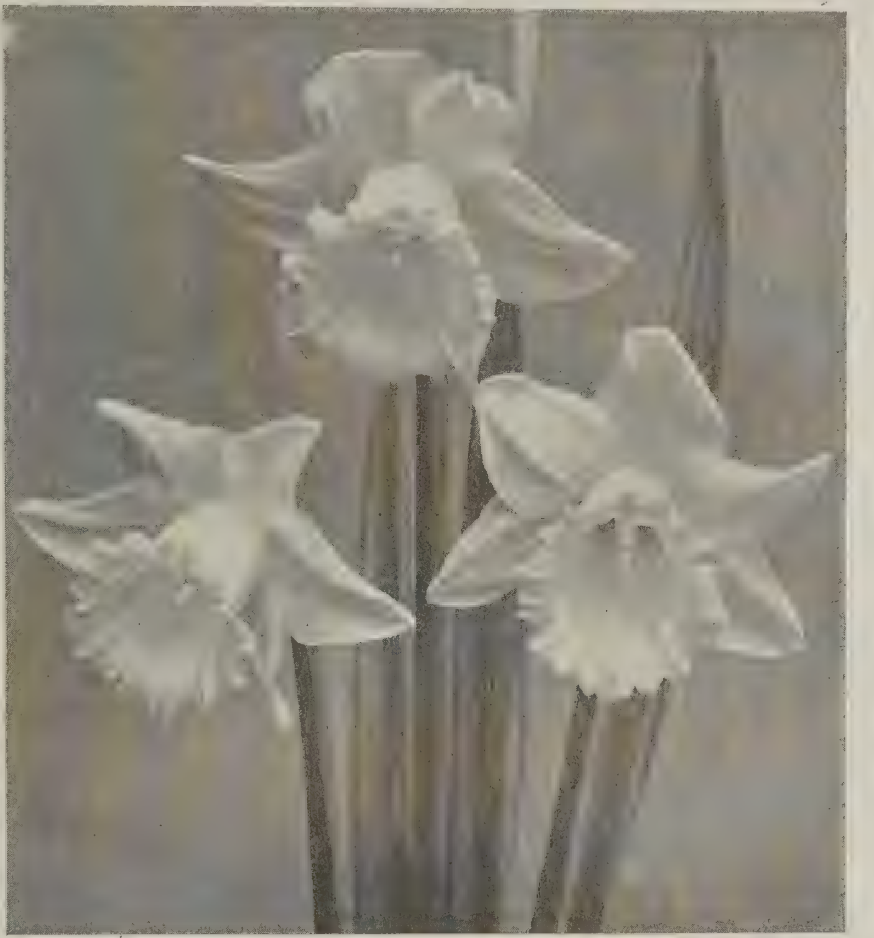

FIG. 101.—NARCISSUS BRIMSTONE, AWARDED A PRELIMINARY COMMENDATION AT THE BIRMINGHAM DAFFODIL SHOW, ON THE 18TH INST. (SEE PAGE 224.)

THE FERNERY.

A FINE HARDY MAIDENHAIR.

ADIANTUM PEDATUM is a North American Fern of much grace and elegance and one that is hardy enough for almost anywhere. But even better than the type is the variety known as A. pedatum Klondike, which will make a bulky mass of about 18 inches in height and prove a free and easy grower in most circumstances.

The beautiful fresh green foliage, which is hardly less fragile in appearance than that of our common Maidenhair, is liable to injury by wind, as is that of most Ferns. A sheltered situation, preferably in shade, should therefore be chosen for A. pedatum, and the soil, well broken to a considerable depth, must be freely drained, yet retentive of moisture. The addition of leaf-mould or fibrous peat is desirable, but established plants that are doing well may be left without attention for years. The foliage of A. pedatum completely disappears in autumn, the new fronds uncurling their black stems in March or April. *A. T. J.*

The Week's Work.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Antirrhinum.—So soon as seedling Antirrhinums that have been pricked out are sufficiently hardened plant them in their flowering places. Early planting means early establishment, while dwarf, sturdy plants more quickly recover from the check of planting than do big or attenuated specimens. The arrangement of planting the Antirrhinum varies in different gardens, but on the whole the system of placing them in beds of separate colours is the most popular one. Two other methods we have used here with success; the one intermingling them with Zonal Pelargoniums, the other associating them with Pentstemons—in each case the colours of the plants corresponding or blending.

Chrysanthemums.—The root-stocks of border Chrysanthemums that have been wintered in cold frames may, if an increase of stock is desired, be divided and replanted in the border —having first prepared and enriched the ground with well-decayed manure. The young newly-rooted plants of this spring may be also planted when they are sufficiently hardened. The less robust varieties will make a better display arranged triangularly.

Hardening Bedding Plants.—This is necessary for tender summer flowering plants that have been growing in little or much fire-heat during the past months and will be required for planting in a few weeks' time. Cold frames are ideal structures for this purpose; failing this improvise a skeleton frame or place the plants against a wall or fence affording, in both cases, a little protection at nights for some time to come.

Rosmarinus officinalis.—This shrub, popularly known as Rosemary, is a very old favourite and of much interest in early spring when covered with its pale blue blossoms—which are most freely produced on plants growing in light, well-drained soil. Drier soil also reacts on the fragrance of the foliage of this plant, causing its aromatic nature to be more pronounced. Rosemary is not everywhere hardy in the open, in which case it should have the protection of a wall or fence. I have also found this shrub to be most difficult to transplant successfully when it has grown to, say, 3 feet or so. However, cuttings are easily rooted, as also are pieces of growth put down as layers.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Peaches and Nectarines.—When the fruits of the earliest trees of these fruits have passed the stoning stage the temperature of the house may be increased to 65° at night, with a rise of 10° during the day time without sun-heat. The house should be closed, and the trees syringed thoroughly early in the afternoon, when the temperature, with sun-heat, may be allowed to rise to 85° to 90° during the remainder of the day. When the fruits commence to swell for the final tune, any further reduction in the crop that may be deemed necessary should receive prompt attention. Trees carrying heavy crops require adequate moisture at the roots, and the borders must not be allowed to approach a state of dryness. Stimulants should be applied to the roots each time the border is watered. A mulch of half-decayed manure will be beneficial for preserving the moisture in the soil, and attracting the roots to the surface. Pay attention to the stopping and training of the young shoots. The fruits should be exposed fully to the sunshine, pinching off any leaves that overshadow them. It is not a good plan to tuck the leaves behind trellis-work fixed close to a wall, as it is not possible to syringe them properly, and red spider finds harbourage on leaves thus placed. Should the trees be attacked by this pest prompt measures must be taken to eradicate it before the fruits commence to ripen, as during that period it is not safe to use strong insecticides. Maintain a moist atmosphere by damping the paths, borders, etc., frequently, and ventilate the house freely when the weather is warm and bright.

Successional Trees.—Later trees of Peaches and Nectarines that have set their fruits, and the latter now swelling freely, should have all badly placed fruits removed, gradually thinning the crop to the required number. Timely attention should be given to the tying of young growths. Thoroughly syringe the trees when closing the house. Admit air gradually when the thermometer is 75°, but prevent cold draughts. The night temperature may range from 55° to 60°, according to the weather. Trees in late houses are passing out of flower, and when the blooms are over the house should be fumigated after sunset; the following morning give the trees a good syringing. Disbudding will require constant attention; the removal of the shoots should be gradual. The state of the border for moisture should be considered and water applied if necessary. Trees that have set fruits freely may be afforded stimulants in the form of liquid manure, guano water, or a suitable artificial manure. Ventilate the house freely on sunny days, using as little fire-heat as possible.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Onions.—Seedling Onions growing in boxes or frames, provided they have been suitably hardened, are ready for transferring to the open ground. Rake the bed first with a wooden and then with an iron rake, to obtain a fine surface, and tread the soil firmly. Select a fine day for transplanting, when the ground is dry and friable on the surface. Lift the plants carefully with good balls of soil, and do not plant them too deeply; set them about one foot apart, and fifteen inches between the plants in the rows. When planting is finished, rake the bed to present a neat appearance. Should the weather be warm and dry, give the soil a copious watering to settle it about the roots. Afterwards hoe the bed periodically to keep down weeds and promote a healthy growth in the Onions. Give the latter a dusting of soot during showery weather; soot is a fine stimulant for this crop.

Winter Greens.—Sow broadcast on an open border varieties of Kales, Broccoli, Savoys, and late Brussels Sprouts. Cover the seed with fine soil, label each variety distinctly, and net the seed-bed against birds. Water the soil with a rosed can if the weather is dry. Sow thinly in order that the plants may grow strongly and sturdily, and thus be suitable for transplanting direct from the seed-bed.

Celery.—If required for early use, some of the more forward of the seedling Celery should be planted in a frame on a spent hot-bed, where they will make fine specimens by July or August. Keep them well watered, and use weak soot water occasionally, or diluted farmyard drainings. Blanch the sticks by tying bands of brown paper about six inches wide around them as they grow. Celery plants pricked out in frames or boxes should be well watered and kept clean by hand weeding until they are ready for planting out.

Autumn-sown Cauliflowers.—These Cauliflowers may now be planted in well-manured ground, or between Asparagus beds, where they will have slight protection from cold winds. Mulch the plants with half-rotted manure if the weather is dry.

Groundwork.—All ground intended for cropping with Carrots, Beets, Turnips, and other vegetables should be lightly forked over in order that drying winds may break it down and make it suitable for raking to a fine tilth.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke
Marlborough, K.G., Blenheim Palace, Woodstock, Ox

Anguloa.—These Orchids are developi
young growths and flower buds, which appe
together. If repotting is required, it shou
be done as soon as possible after the flowe
have faded, as the new roots will then
pushing from the base of the new growth
Use a compost consisting of one-third each
good fibrous loam, peat, and Sphagnum-mos
with a good sprinkling of crushed crocks, a
mixed well together. These plants are robu
growers, and should have sufficient spa
afforded them to permit of them remaini
undisturbed for at least two seasons. The po
should be well drained. In repotting, be car
ful not to bury the base of the young growt
too deeply, as it may be the means of the
decaying; it is advisable to leave about ha
inch of space below the rim of the p
to allow for watering. These Orchids shou
be watered sparingly after being repotted, bu
when well rooted, they require copious su
plies of moisture until the pseudo-bulbs a
fully matured.

Odontoglossum.—Any plants of O. crispu
O. Pescatorei, and the numerous hybrids of th
beautiful genus that are not flowering, and a
in need of new material, may receive attentio
but none should be disturbed unless absolute
in need of it. Many consider August a
September the best time for potting these plant
but in a present-day collection of Odont
glossums, there are some in flower during mo
months of the year. In view of this fact the
are always some that will require repotting
different seasons; hence the necessity of atten
ing to them at different times. The prop
time to repot Odontoglossums is when the ne
growths are about four inches high and abo
to develop roots. When repotted at this sta
the plants quickly recover, the new roots ent
the fresh material freely, and receive the lea
possible check. The pots should be well draine
but not to the extent as formerly practise
although sufficient drainage material should
used to allow water to pass away freely.

Compost.—A suitable compost consists of t
parts peat fibre, one part Sphagnum moss, a
one part broken leaves, with some broken sm
crocks added; all the earthy particles shou
be carefully removed from the fibre. Ha
tough fibres such as Osmunda and A.I. fibres a
not suitable for these Orchids, and I find th
do much better when grown in material of
softer nature.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Bota
Gardens, Kew.

Aeschynanthus.—This is a beautiful genus
stove plants which are mostly of a scande
habit and are therefore well suited for filli
baskets, teak Orchid baskets being best for t
purpose. If grown in pots they should be ke
neatly tied to slender stakes. They enjoy
rich, open compost consisting of rough fibro
peat and loam, mixed with clean, coarse sa
and charcoal. They are easily propagated
means of cuttings of half-ripened shoots pla
in sandy soil in a warm propagating case.
atrosanguinea, A. Lobbianus, A. tricolor a
A. zebrinus are the species commonly cultivate

Coleus barbatus.—This pretty, blue Coleus
very useful for autumn flowering; it is eas
propagated by means of cuttings inserted at th
season, the cuttings rooting readily in a clo
case furnished with slight bottom heat. Dur
its growing season this plant needs an inte
mediate temperature, and succeeds in any go
potting compost. When in flower it stands qui
well in a warm greenhouse.

Epacris.—At one time this genus of plan
was popular for furnishing greenhouses, but t
species are not so generally grown now as the
merits deserve, for they are very useful plan
for decorative purposes. They grow quite we
in the same conditions as those afforded gree
house Ericas, with this exception that whe

making their growth they need more warmth. When they have finished flowering they should be pruned and placed in a house where they may be kept warm and close, a temperature of 50° uiting them, until they have finished their rowth, when they should be given ordinary reenhouse treatment. E. longiflora differs from he hyacinthiflora varieties, as it makes long, straggling growth, which should not be pruned ard back, but trained neatly to suitable takes. Under good management this plant will make large specimens. The plant may be proagated now by means of cuttings made from oung shoots, about three inches long. They should be very carefully trimmed as the bark easily stripped off. The cuttings should be dibbled into pots containing sandy peat, watered reely and stood under a bell glass in a propaating case, provided with slight bottom heat. When rooted the young plants should be transferred to small pots, in a compost of sandy peat; hey should be stopped on frequent occasions to ensure a good habit, potting them on as they equire it, and growing them steadily on in a ight greenhouse.

Clerodendron fallax.—This species is generally egarded as a stove plant, but it makes an xcellent subject for furnishing the greenhouse during late summer and early autumn. It may asily be propagated by means of cuttings made f the young shoots; the cuttings should be inserted singly in small pots, plunging them in a warm propagating case. I, however, prefer to raise them from seed, and seedlings raised rom seed sown some time since are ready for potting on. Good specimens may be grown in ix-inch or seven-inch pots. They should be grown in a temperature of 55° to 60° until they ome into flower. When grown for winter flowering in the London neighbourhood they requently get spoiled by fogs.

Clerodendron ugandense.—This is a beautiful blue-flowered species, which succeeds under ordinary greenhouse conditions. It is seen at ts best when planted out and grown as a bush. or it may be trained to a rafter under the roof of a greenhouse. After the plants have inished flowering the stronger shoots should be partly pruned back. It may be propagated eadily from cutings made of the smaller shoots.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

The Fruit Blossom.—As trees of all kinds come into flower constant care must be exercised that the shy setters are artificially pollenised. Cherries are promising well for a large crop, many trees being laden with blossoms. There seems some indication of an increase of winter moth caterpillar, and backward trees may still be sprayed before the blossoms open. Those who afforded protection to trees found it very timely during last week's sudden return to winter conditions. Some of the Peaches and Nectarines will have set their fruits, and the protective material may be removed and transferred to later blooming trees.

Hoeing.—The principal work of the moment is to keep the soil of both top and bottom fruits sweet, by well hoeing it.

General Remarks.—All grease bands should be removed from fruit trees and burnt. Wall trees will need watching, and any shoots which have become detached from the wall should be readjusted. Winter Greens that have occupied ground under orchard trees or near fruit trees should be removed as early as possible, to prevent undue exhaustion of the soil, and the spread of insect pests. From now onward where t is known to be present Woolly Aphis must be mmediately dealt with on its appearance. It s not an easy pest to exterminate. The use of a brush dipped in methylated spirit will reduce it. If paraffin is used it should not be allowed to saturate the bark of young trees. The removal of soil infected by hibernating larvae, as previously advised, will do much to check the spread of this pest.

PUBLIC PARKS AND OPEN SPACES.

We learn from the *Glasgow Herald* that the new road through the Glasgow Botanic Gardens with the new bridge over the River Kelvin, which the Corporation of Glasgow have authorised to be constructed, is intended to serve a twofold purpose. It will afford the north-western districts of the city, Maryhill in particular, direct communication to the harbour and docks, and at the same time relieve the congestion of vehicular traffic which emanates from these areas, and, following a long and circuitous route, via New City Road and Charing Cross, falls into Dumbarton Road. Several miles will thus be shorn off the journey between these parts necessitated by the existing conditions. The road in the Botanic Gardens will be 80 feet wide, and will extend from the gateway in Great Western Road to the south bank of the Kelvin, where a new bridge will lead direct into Queen Margaret Drive, North Kelvinside. At its southern end the new thoroughfare will join Great Western Road opposite Byres Road, thus giving an almost straight route between the extreme north-west of the city and the Clyde. The road will pass between the Kibble Palace and Queen Margaret College, a portion of the grounds of which the Corporation have acquired at a cost of £10,000. It is intended to erect a three-arched bridge—a large arch spanning the Kelvin and smaller arches on either side of the river affording access to pathways on its banks. The bridge, it is expected, will be of somewhat similar design to the Kirklee Bridge.

Lord Airlie and Mr. A. J. Kinloch Smyth, of Balhary and Bardmony, joint proprietors, have given Bamff Den to the public of the town of Alyth as a public park. The Bamff Den extends to about eighty acres on both sides of the Alyth town, which forms a boundary line between the estates of Lord Airlie and of Mr. A. J. Kinloch Smyth, which is a favourite resort of the people of Alyth. The scenery is very beautiful and the Den is surrounded by deeply wooded country.

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON OBTUSUM ALBUM.

The accompanying illustration (Fig. 102) gives but an inadequate idea of the beauty of this rare old Azalea, Rhododendron obtusum album. The plant itself is growing in the garden of Professor Sargent, Holm Lea, Brookline, Mass., where for more than sixty years it has been cultivated. The flowers are single, and of the purest white.

This lovely Azalea was one of Robert Fortune's introductions from China to the Royal Horticultural Society. It was received in May, 1846, from Hongkong, and named Azalea ramentacea by Lindley in 1849. On his first journey to China Fortune had found in the Poushan Azalea Garden, near Shanghai, an Azalea with small red flowers. This he sent to the Royal Horticultural Society in 1844, and Lindley named it Azalea obtusa in 1846. Another Azalea was sent to England from Shanghai in 1850 or 1851 by Fortune. This also had small flowers, rich magenta in colour, and Lindley named it Azalea amoena.

It is rather strange that the specific identity of these three Azaleas remained unsuspected by Lindley. We now know them to be garden forms of an Azalea which is abundant on Mt. Kirishima and elsewhere in southern Japan. This plant is characterised by its small leaves, its densely twiggy habit and by its small five-stamened flowers of many shades of colour, and is known by the name of Rhododendron obtusum japonicum. From plants of this wildling, by selection and skilful cultivation for a century in the city of Kurume in South Japan, there has been brought to perfection a race of Azaleas having all the exquisite shades of colour found among Sweet Peas. This race—known as Kurume Azaleas—is now finding its way into Western gardens. The three Azaleas introduced some 70 odd years ago by Fortune were simply forerunners of these Kurume Azaleas, and of the same parentage, though where in Japan and by whom they were first grown is unknown. *E. H. Wilson, Arnold Arboretum.*

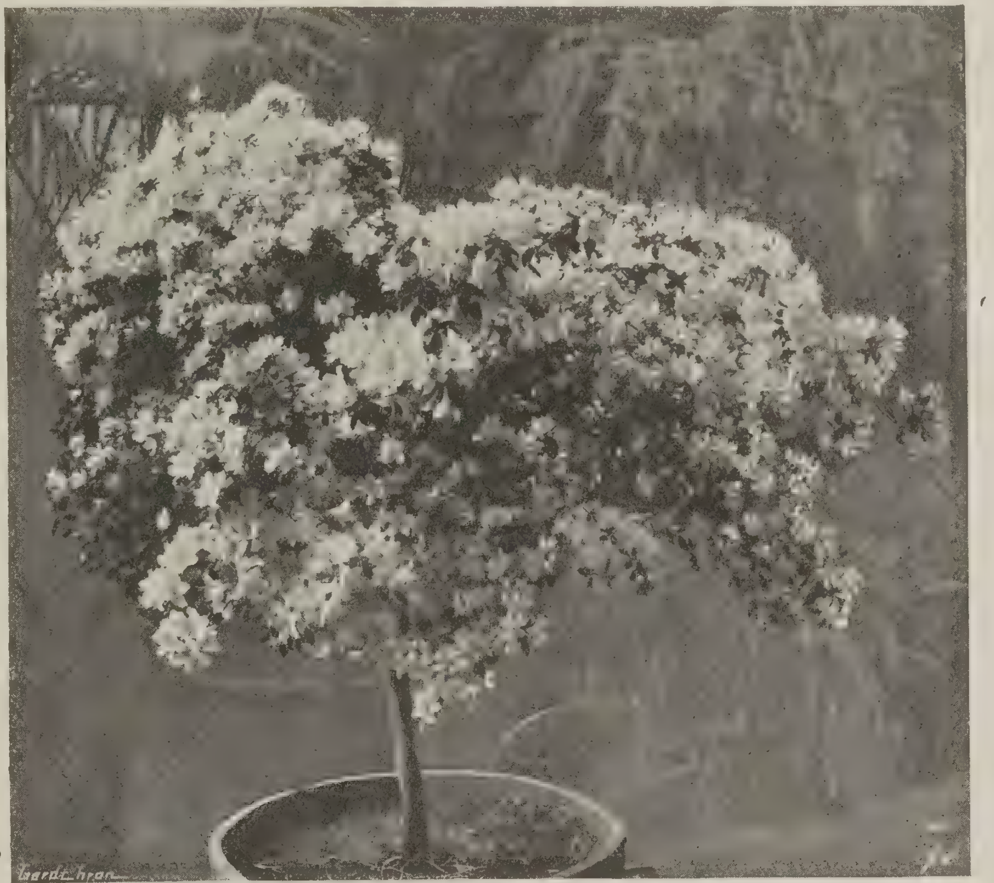

FIG. 102—RHODODENDRON OBTUSUM ALBUM IN THE CONSERVATORY AT HOLM LEA, BROOKLINE, MASSACHUSETTS, U S A.

WONDERFUL RUBBER.

The present century has seen the birth of a new industry, or rather two new industries, for the growing of rubber, considering the vast capital employed, must be classed as an industry, as well as the manufacture of the raw material into the innumerable articles of our daily use.

So long ago as the year 1500, rubber was being used by the natives of Mexico to waterproof their clothes, and to make balls for use in their games. Introduced into Europe, its first use was for erasing pencil marks, and it thus secured its name of "rubber." The discovery of the vulcanisation method extended its use in many ways, until, by the end of last century, the total consumption of this product had reached about 70,000 tons annually.

The whole of this rubber was obtained from wild trees, chiefly in America, but a certain quantity came from Central Africa. At the beginning of the present century, results obtained from trees sent to the East in 1877, raised from seeds obtained in America, proved the feasibility of cultivating rubber, and large areas were put down to this crop. This development has reached gigantic proportions. Hundreds of thousands of acres are now planted with the South American Hevea brasiliensis, and, besides hundreds of British estate managers and assistants, thousands of natives are employed in the industry. The cultivation of Hevea rubber has brought prosperity to several of our Eastern possessions. This century has seen the principal source of production shifted from the Western to the Eastern Hemisphere, from wild forest trees to cultivated plantations. Whether the demand created the supply, or the supply the demand, there is now an annual production of over 300,000 tons of cultivated rubber, against a production of 70,000 tons of wild rubber twenty years ago. Whilst the production of cultivated rubber increases annually, wild rubber decreases in volume. To-day the amount is probably under 30,000 tons from America, with none at all from Africa.

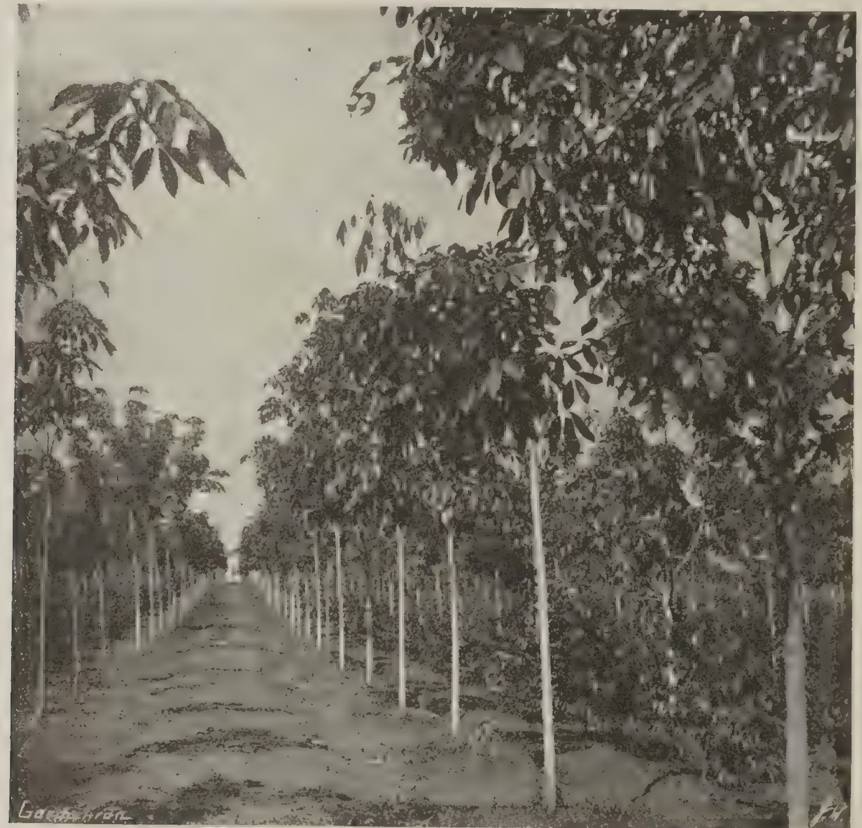

FIG. 103.—PLANTATION OF YOUNG RUBBER TREES.

It will be clear that the uses for rubber have multiplied enormously, to assimilate the greatly increased production. So gradually has this come about that it has been almost unnoticed. Yet if trouble is taken to notice the frequent use we all make of rubber in some form in our daily lives, we cannot but be astounded at its multitudinous uses. In our sports, travels, illnesses, dress, work and offices we constantly handle it. One might almost say that man is now entering a rubber age, as pronounced as the flint and iron ages.

Nor have the uses for rubber been exhausted. In fact, they seem to be only just beginning. Up to the present, raw rubber has been imported in the solid state. The latex (or sap) obtained from the tree is coagulated on the estate where grown, and brought home in sheets. The manufacture of this entails heating and mixing with various ingredients according to the article to be made. Recently, however, wonderful things have been done with the liquid latex, used as it runs from the tree. Professor Kaye has invented a process for incorporating the latex with paper pulp, in its manufacture, and claims that this process will absorb 50,000 tons of rubber annually. Paper may be made to almost any degree of strength and impenetrability. Such paper is now in use commercially as stationery, and experiments to extend its services are opening out an enormous field. Some success has also been obtained in experiments in vulcanising the liquid latex, and doubtless other means of using rubber will thus be discovered. It seems probable that in the not distant future rubber may be imported in its original liquid state, and the oil-tank steamer may have as its congener on the ocean, the rubber-latex tank steamer. These recent developments in the use of rubber are likely to be as epoch-making in their effects as was the discovery of the method of vulcanisation, which may almost be said to have lifted rubber from its limited use as an eraser, to its present-day industrial importance. The illustrations in Figs. 103 and 104 show respectively a plantation of young rubber trees, and an older plantation in which the trees are of a suitable size for tapping. *E. Brown.*

FORESTRY.

OLD AND NEW CONIFEROUS TREES

At the time when most of the existing plan tions in this country were formed, there see to have been but little attempt to make use more than three species of coniferous trees, cluding the Larch, Scotch Pine and Spru Nowadays, three others at least are commo planted, the Silver or Sitka Spruce, Japan Larch and Douglas Fir, all of which are be extensively employed by the Government in present afforestation scheme. The older spec it must be admitted, are capable of thriv over a more extensive area of different soils a situations than the later introductions, th being few tracts of land either at high or altitudes, where the sturdy Scotch Pine a Larch will not thrive and produce valua timber. The Spruce for low-lying, damp grou is invaluable, and in conjunction with others, forms a trio that for extensive plant have few equals. Amongst the later introd tions, it would yet be premature to speak in positive manner regarding the value of Japanese Larch for general afforesting p poses, though its behaviour so far has cau it to stand high in the estimation of Brit planters.

The Douglas Fir is a capital tree as I saw in British Columbia, but fully fifty years' perience of it in this country has almost c clusively proved that it is only suitable planting in sheltered and preferably mariti situations. On exposed lands, where the Sco Fir and Larch thrive well, it is a failure, may be seen on many estates throughout t country. Trees in plantations I have seen ha grown rapidly, and promise to produce valua timber.

The Silver Spruce has much to recommend for extensive planting, as it will thrive at h altitudes, on the poorest of soils, the only c dition being that a fair amount of moisture at all times provided. The timber is of excell quality, superior in many ways to that of a other member of the family to which it belon

It is certainly far ahead of either the Doug Fir or Japanese Larch in point of value as profitable tree for extensive planting in t country.

In the Japanese Larch there is little dou that we have a good all-round tree, and one th for a time at least, will be less subject to dise than the commonly cultivated species. That will ever prove so valuable a timber produ as the common Larch is open to doubt. So the Japanese Larch seems less liable to dise in this country than the European Larch, but is as yet only in a comparatively young stage growth, while the timber appears to be of v good quality and produced quickly.

Regarding the almost inestimable value of t native Scotch Pine for afforesting purpo little need be said, as it succeeds on the poor of gravelly soils, in rocky situations at high al tudes, and produces a large volume of timb which, for all-round joinery purposes, has fe rivals.

In every scheme of afforestation, therefore, t three trees that originally formed the backbo of our woods and forests in this country mu on no account give way before the later intr ductions, the former being in the category well tried, while the Sitka Spruce, Douglas F and Japanese Larch are simply on trial. B all means plant these, but only in conjuncti with the older and better tried species.

To some small extent both the Corsican a Weymouth Pines have been used in the form tion of plantations, and though the latter is most valuable timber-producing tree, its pec liarities of requirements have prevented i being widely employed for that purpose. O light, rich soil, where it is not allowed to suff from drought, it thrives well, as many plant tions of the tree in various parts of the countr testify, notably in Berkshire and some of th adjoining counties. On the deep, sandy soi around Windsor, the Weymouth Pine has do exceptionally well, having attained to a larg size and produced an excellent quality timbe To recommend it for general afforesting purpose in the case of the Larch and Scotch Pine, uld be a mistake, though for certain positions is well suited. The Corsican Pine, though a st accommodating tree, hardy and fast- wing, has not given general satisfaction in quality of timber produced in this country. is comparatively rough, over-resinous and ficult to work under the tools of the carpenter. r planting on barren, heathy soils it is to be ommended, where it grows with great rapidity l affords a large amount of shelter to other s hardy kinds of trees.

All the above trees are available for purely nomic forestry, or the quantity and quality timber they produce, while their all-round ommodating natures, especially in the case of first six mentioned, have gained for them a ce wherever planting operations are being ried out. In connection with this, it is well know that all may be readily purchased in siderable quantities from the various nursery- n who make a speciality of cultivating for e the best of our forest trees. Seeds may also procured at a moderate price, but unless in cial cases, it has been found preferable for se who contemplate extensive planting opera- ns to purchase seedling plants of one or two rs' growth and grow these on in the home sery for another twelve or eighteen months. *D. Webster.*

ARDY FLOWER BORDER.

HERBACEOUS PAEONIES.

HE Paeony is one of the oldest of our tivated border flowers, and derives its name m Paeon, a physician, who, through lousy, was secretly put to death by Aescu- ius, the god of healing, for curing Pluto a wound received from Hercules. Pluto, of gratitude to Paeon for thus saving his , and to perpetuate his memory, trans- med him into the flower known as the ony.

t belongs to the Ranunculaceae, and is nd wild in many parts of the Northern Southern Hemispheres; it is a strange t that the only Paeony found in many tage gardens is the old double red P. cinalis, which forms large clumps and vers with great freedom. This plant has strong, pungent odour. It is a valuable den plant, and very decorative during May, en it produces white, rose, and deep red oured flowers. There are also single- vered varieties in various shades, which equally showy and decorative.

But the Chinese forms of P. albiflora, with icately coloured and sweetly Tea-Rose- nted flowers, appeal most to lovers garden flowers. This type has large, hand- ne double and single flowers, produced dur- early June and through July, the varieties ging in colour from snow-white to blush e, blush pink, deep rose, scarlet to deep mson.

These Paeonies are easy of culture, and y be planted with excellent effect in almost position; they are especially effective en associated alternately with such sub- ts, as Aconitums, Liatris, Delphiniums, rennial Asters, Tulips, Daffodils, etc., or y may be grouped and massed in oval or cular beds with Lilium auratum, forms of speciosum, L. tigrinum, and other Lilies ich succeed the Paeonies in flowering. No wer is more effective than irregular ups of Paeonies of one colour, or even en arranged in their various delicately ted shades gradually running into the per tones to scarlet and crimson.

They may be planted in grass, with a back- und of flowering shrubs or trees, which l protect the Paeony flowers from wind l rain, as well as prolong their flowering son. If sufficient space is allowed in plant- between each group to set the spring and tumn flowering subjects already referred to, effect will be enhanced by the crimson- ted stems of the young growth of the eonies producing an effective contrast to bright green foliage of the Daffodils, etc. The flowers are invaluable for use as cut blooms, and may be had in endless shades of colour to suit all forms of decoration. They possess a fragrance equalled only by the Tea Rose. In large gardens, quantities should be specially planted and cultivated for cut flowers for house decoration and other purposes.

The Paeony is also beautiful in its foliage, which is almost as attractive in its young growth and autumnal tints as the flowers; the leaves assume in autumn all tints of bronze, purple, orange, and crimson, and, when cut and placed in vases of flowers, add considerably to the effect.

The cultivation of the herbaceous Paeony is very simple, as almost any soil and situation are suitable, and the plant is extremely hardy. The ground should be trenched from 1½ foot to 2½ feet deep, and enriched with well-rotted manure and leaf-mould. In stiff clay the crowns should not be covered more than 2 or 3 inches under the surface. The root is of fusiform shape, hard and fleshy. These Paeonies may be transplanted any time from early autumn to spring. Spring-planted roots should be well watered, and they need subsequent occasional waterings in dry weather.

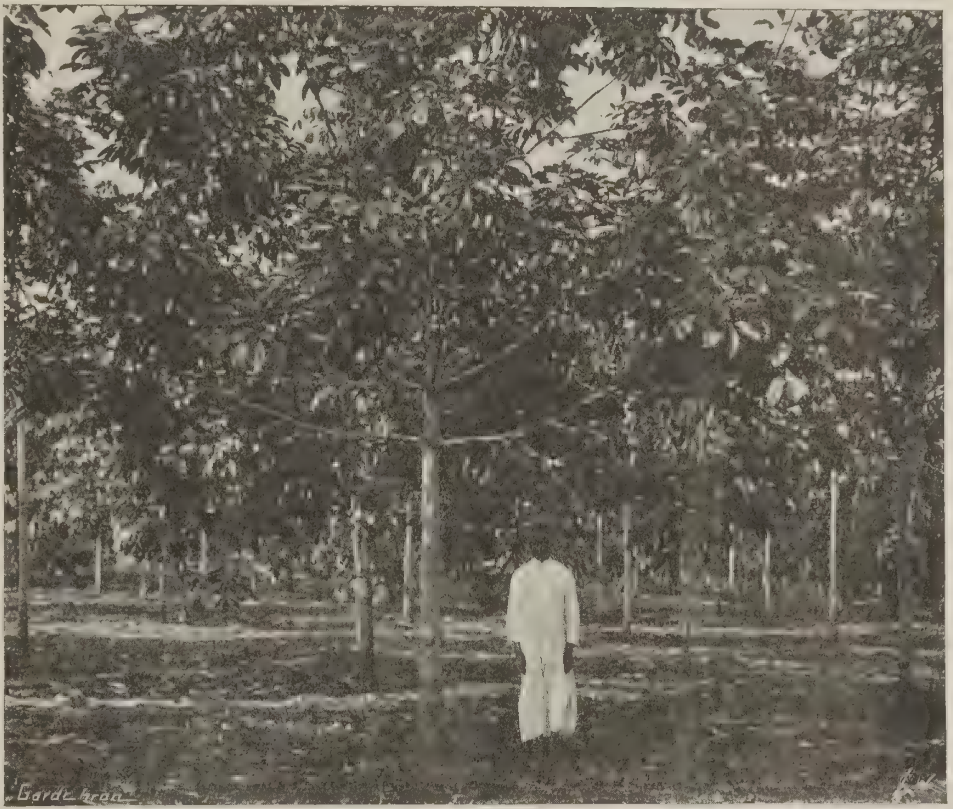

FIG. 104 —RUBBER TREES OF A SIZE SUITABLE FOR TAPPING (SEE PAGE 228).

In the case of either autumn-planted or spring-planted roots it is advisable to give them occasional waterings with liquid manure, which will result in a larger quantity of bloom and richer colouring in the flowers. In shallow, dry soils it is advisable to apply a mulch of manure or decayed leaves to help to conserve the soil moisture in hot weather.

In planting, it matters little how small the root may be, provided it has a strong eye or two. The plant may be set from 1½ foot to 3 or even 4 feet apart, according to the space available and the effect desired, or they may be inter-planted with other subjects, such as Narcissi, Delphiniums, Aconitums, etc., these to succeed the Paeonies in blooming.

The foliage should be allowed to remain on the plants for so long as the leaves retain their gorgeous autumnal tints.

Varieties are very numerous. A few of the finest and freest-blooming, in their various shades of colour, are:—(Blush pink) Albert Crousse, Achilles, General Bedeau, Caroline Allain, Eugene Verdier, grandiflora carnea, Madame de Vatry, Sarah Bernhardt; (white and cream) Canarie, candidissima, Duchesse de Nemours, Duke of Wellington, Festiva maxima, and Solfaterre; (rose and pink) Arethusa, Lady Leonora Bramwell, Madame Furtado, Madame Geisler, Reine Hortense, rosea plenissima, and Suzette; (deep rose) Coralie Matthieu, E. G. Hill, Fragrans, Germaine Bigot, L'Admirable, and Madame Forel; (deep crimson and purplish) Berloiz, Francois Ortigat, Fulgida, Gloire de Touraine, Isabelle Karlitzky, Lord Salisbury, Louis van Houtte, Monsieur Krelage, Pomponette, and Prince Imperial.

The single Chinese Paeonies should be represented in all collections, more especially where cut flowers are in demand, as the blooms lend themselves admirably for table decoration, having stout, stately stems. The handsome flowers appear during June, and may be had in all shades from snow-white to dark crimson. The best varieties of this type are:—alba grandiflora, Duchess of Portland, Milton, Queen of May and The Moor.

May-flowering species and varieties precede the Chinese varieties in their time of flowering, and are useful as cut flowers. The foliage shows great diversity, and the habit of growth varies considerably. The plants require similar soil and situation as recommended for the forms of P. albiflora. *W. Logan.*

STYLOPHORUM DIPHYLLUM.

There are few more satisfactory plants than Stylophorum diphyllum for a cool, free soil in half-shade, and it makes a first-rate woodland subject. It might be described as a very superior and enlarged Greater Celandine (Chelidonium majus), for its fresh, green, deeply-lobed foliage and the golden Poppy-like flowers remind one of that familiar native. S. diphyllum grows to about 2 ft. in height and produces throughout the summer a succession of its pretty blossoms, which are some 2 in. across and held on elegant stems just clear of the leafage. This Poppywort is easily raised from seed, which ripens in abundance, and once it is established in a suitable spot it will ask for no further attention. S. diphyllum is the Yellow Celandine Poppy of North America, and was at one time known as Meconopsis petiolata, with which is, I think, synonymous the S. ohioense of some trade lists. *A. T. J.*

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STEPHEN SWITZER.

THE two pamphlets of Switzer's referred to on page 101 deserve a fuller notice. They are somewhat scarce and are otherwise interesting, as all that came from Switzer's pen is, and not improbably both served and were intended as puffs oblique for his benefit as a seedsman. *The Compendious Method* contains x—78 pages, of which only 24 pages are devoted to vegetables, the rest being filled with notices of "grasses," Lucerne, Clover, etc., the improvement of land by the burning of clay, and a notice of Mr. Liveing's manure, first brought before the public in Trowell's *The Farmer's Instructor*, and which was merely the waste of salt works. Of this Switzer was an agent, and it might be procured "At the Great Seed Shop opposite to the Common-Pleas Court, Westminster Hall."

In the preface Switzer gives expression to a belief that other seedsmen regarded his association with dislike, and were perhaps angry with him for some remarks he had made regarding their honesty. But he consoled himself with the axiom "That 'tis much easier for a Gardener to make a Seedsman, than 'tis for a Seedsman to make a Gardener." To show that seedsmen were not always to blame for supplying bad seeds he relates how that a bag of seed he himself bought for the new "Brocoli," when it came up "was nothing else but Turnips." The varieties of Broccoli seem to have been similar to our Sprouting Broccoli, and the stems of the Sprouts were peeled, cooked and eaten like Asparagus; hence called Italian Asparagus. Celeriac was strange to our author, but a letter from Thomas Knowlton, a botanist gardener trained in Sherrard's garden at Eltham, describes it. Finochio, too, was a new vegetable cultivated in Lord Peterborough's garden at Parson's Green, that nobleman having introduced it from Italy. Mushrooms seem to have been a very elusive crop. One could never depend upon this "valuable Excrescence" making an appearance. It was indeed his experience, substantiated by that of others, that by utmost care one was always disappointed, while on taking no heed at all, "they grew as it were of themselves." How true in the case of other things as well! They were mostly produced from "Fibres" "dug up out of the ground in the Fairy-Dances," or imported from abroad. Myrrhis odorata was blanched and eaten; and there are also brief notices of a few common vegetables.

The remarks on the various substitutes for grass are very interesting, as showing the awakening of the country to the providing of artificial food for cattle. Several pages are devoted to the impressing on the minds of his readers the value of burnt clay as a dressing to land under cultivation, two plates being given to elucidate the methods of calcination, and a statement regarding Liveing's manure concludes the little volume which, I believe, was sold unbound. The price was 1s. 6d. The other pamphlet was the same price, and extended to 79 pages, and both were printed for Thomas Astley at the Rose in St. Paul's Churchyard. The title page of this, *A Dissertation on the True Cythisus of the Ancients*, is very closely filled with brief statements of the nature of the contents of the little book and with quotations, which Switzer was fond of making, from Latin authors. The ostensible reason advanced for its production was that the author might demonstrate that a letter published by Cowell, of Hoxton, from A. Heron, Bargaly, Dumfries, asserting the Bastard Sena to be the Cytisus was a mistake, and that the plant was Medicago arborea. That gentleman, however, stuck to his colours, and sent a letter to Switzer, published by him, to show that he, the writer, was right. That and personal notes scattered throughout its pages give him an interest which no doubt had a good deal to do with the popularity achieved by the author. Thus he tells us that "Mr. Cowell was late of Hoxton" (1731). The above Mr. Heron cultivated a full collection of hardy shrubs on his estate, an interesting statement regarding the rapid spread of horticultural taste in the North. "The Ingenious Mr. Phillip Miller, Botanick-Gardener at Chelsea . . . .is now going to favour the world with a large and very useful work"—*The Gardener's Dictionary*, published the same year (1731). But Miller disagreed regarding the usefulness of the Medicago. The winter of 1730-1, we are told, was an extremely severe one and hurtful to vegetation. A few pages are allotted to remarks on Lucerne and burnt clay before an *Account of Seeds* is reached. This is a preamble to a catalogue of seeds, fruit and forest trees, shrubs, flowers, etc. Sold by S. Switzer, at the Flower-Pot, over against the Court of Common-Pleas in Westminster Hall; or at his Garden on Millbank, Westminster, with the season of sowing and planting, etc.

In *An Account* he is careful to indicate the many reasons why seeds either fail to grow or, if they grow, produce different plants from those they were purchased for. If we may credit Switzer, gardeners were tied to a particular seedsman, and so when seeds were purchased from another firm, "it very often happens that the good Seeds are either changed or spoil'd, that the Odium may be cast on the Seller." He concludes—Tho' I can't take upon me to justify all who follow the Employment I have been mentioning, or say that some of them do not knowingly and willfully sell those Commodities that they are sure will not grow; yet I can solemnly declare that I never directly nor indirectly us'd that practice, *i.e.*, in the buying and selling that which I certainly knew was not good; on which account I have lost the taking of several sums of money. Nor am I ever sanguine enough to vindicate the best things, on the contrary, whenever I have had the least occasion of distrusting the goodness of the commodities, I have told gentlemen, and have publish'd advertisements of it, as soon as I have made discovery of it. And the encouragement which I have met with, even beyond expectation, in my present employment is such, that I can't finish this introduction without returning thanks for it, with a promise that for the future it shall be my endeavour to deserve the favour of my kind correspondents." Which is a very good example of advertising nearly 200 years ago. The catalogue itself extends to 26 pages. It is remarkable, not so much for the number of items included, but as showing that with a few exceptions the same varieties were cultivated as those named in the two catalogues appended to the 1688 and later editions of Worlidge's *Art of Gardening*. If anything, these are more full, and even then Italian Seleree, Italian Fennel, Rocum Bolis, the same sorts of Onions, Melons, Cucumbers, with a larger number of Peas, herbs and annuals are noted. Sweet Pease, Celeriac and Broccoli are absent, and there are fewer seeds for improvements in husbandry.

Switzer offered the following stocks for "Peaches" and Nectarines, viz., Almond, St. Julian, Margaret, Muscle and Norwich; for Apricots, Common Plumb suckers, and Bullace for Brussels. For Pears, Medlar, Quince, Wild Pear, sometimes Whitethorn, and for Apples, French and Dutch Paradise, Royal Wilding and Crab stocks.

Concerning herbs, we are informed that Cla
was for pancakes, Sorrel for sauces, broad Braz
for high sauces, "Peppermint is well wort
propagating," and Carduus Benedictus an e
cellent emetick, certain sorts of Radish we
grown for the seed leaves, and Hartshorn (Sen
biera Coronopus) "keeps longer in the se
leaves than any of the small sallads." Tarrag
in those days was "a fine spicy fruit," a
one is tempted to think from that and oth
strange remarks and spellings, such as spu
for spurry, that Switzer had delegated th
portion of the pamphlet to someone considerab
his inferior in education, or that he had be
remiss in correcting printer's errors. The li
of fruits extends to about 8 pages. *R.*
Brotherston.

NOTES FROM A WELSH GARDEN.

In a garden where a considerable space
allotted to Heaths, the soil being a sharpl
drained woodland loam, we have had occasio
from time to time, to associate with the Eric
various other lowly shrubs. A few notes
those of the latter which have been the mo
successful may prove helpful to readers
this paper.

Set in against a low boundary wall, the s
being extremely dry and hot, double Go
has made an admirable screen and grown free
giving a fine mass of flower at a season wh
the broad belt of Erica cinerea rosea and alli
varieties adjacent to it is at its most colourl
period.

A small colony of Rhododendron Wilsonii a
R. hirsutum, shrubs which have not been sa
factory in other situations, have done ex
lently associated with such Ericas as E. darl
ensis, E. ciliaris Stuartii and others, and
superiority in leaf and flower in the Rho
dendrons thus crowded up by their compani
is very marked when compared with that
those growing in more isolated positions.

Genistas germanica and G. hispanica are fi
rate subjects for the purpose in view. Cyti
purgans has also a restrained habit of gro
in addition to a fine colour and delicious sc
For giving a flash of yellow amid the prev
ing purple of later days, C. nigricans Carl
(pruned hard back in spring) is reliable
good and, where there is space, a drift of U
nanus, the native autumn-flowering Gorse
the hills, is often very effective. Genista
gata and Cytisus purpureus in the white as w
as the incarnatus form we have also associa
with Ericas, but the latter shrub has not
permanence with us of others mentioned.

Barberries are admirable subjects for such
Heath slope as we possess, and those we h
established in conjunction with Ericas
low and medium stature, include Berberis W
sonii, B. Coryi, C. Prattii, and several others
the same class. B. sanguinea, B. Sarg
tiana, B. Wallichiana, B. pruinosa, B. s
caulialata, B. (Mahonia) trifoliata and B. haem
tocarpa have also been introduced. These B
berries are mainly employed as marginal sp
mens, or they are set in groups in the "bay
between the various colonies of Heaths.

Some of the Cotoneasters are extremely us
and effective in combination with Ericas, a
C. congesta planted with E. carnea makes
of the most charming combinations. Among
taller kinds C. hupchensis ,the blossoms
which are nearly equal in size to those
some shrubbery Spiraeas, C. bullata, C. sal
folia, C. pannosa and C. applanata are am
the most noteworthy.

A good word must also be put in for
various Junipers of shorter stature or s
growth, the foliage of which is pleasing in w
ter. Pinus sylvestris aurea, a miniature Sco
Pine with very golden foliage, is ideal for
purpose, as also is the dwarf and prost
variety of the same species. Rubus specio
with its Fuchsia-like flowers, makes a bold sh
of brilliant crimson which, for obvious reaso
is most wisely placed in conjunction with wh
Heaths, and another fine shrub that is equa
hardy and which we have grown among
Ericas for years is Diplacus glutinosus.

n districts where the last-mentioned will sur- e Cistus (Helianthemum algarvensis, C. imifolius, C. formosus and the self-coloured m (unicolor) of the last may well be used sunny foregrounds. Fabiana imbricata is o very suitable, and among the Roses one s a wide choice of suitable species and rieties. Burnet and Scotch Briars are among e best of these for our dry soil. Excellent e may be made of Wichuraiana Roses, which d slender, creeping branches for several yards rough any of the Heathers—a delightful species any season. The little Scotch Rose, William ., Rosa Mundi, Village Maid, Hebe's Lip, sa rubrifolia and other sweet old-fashioned ses are also quite in harmony with the sub- t in view. Nor can one overlook the best our own native species, especially good forms Sweet Briar and R. villosus. *A. T. Johnson,* *Wales.*

INDOOR PLANTS.

EUCHARIS

EUCHARIS GRANDIFLORA (syn. amazonica) is beautiful stove, bulbous plant, producing re white, fragrant flowers in great abun- nce, which are invaluable for the making wreaths and other floral designs, for which rpose the plant is largely grown. This charis is of easy culture, provided it is ven proper treatment. The plants will not rive well if they are overpotted, grown in cool temperature, or given an excess of water efore the bulbs have made sufficient roots assimilate much moisture; neither should ey be divided or interfered with at the roots hen the leaves are in full growth.

The most critical time is the first month two after the plant has been shaken out repotted from a smaller receptacle. After tting, the soil should be kept moderately oist until the pots are filled with roots, for the soil gets sour or sodden from being pt too wet, the plants will not thrive, and timately become sickly. Plunge them in a oderate, warm, moist, bottom heat to start em; strong bottom heat or a high tempera- re is detrimental to them for flowering eely.

After the bulbs are well established, the arts do not require to be grown in bottom at; they will do as well or better without . A house having a temperature of 65° to)° is suitable, in which to grow and flower ese plants during the summer. The mosphere should be moist, and the plants ell shaded from the direct rays of the sun; ey will not thrive in a dry atmosphere. fter flowering and when the young foliage properly matured, the plants should be sted for a time in a temperature about 55° 60°, the soil to be kept moderately dry efore starting them again. They do not re- uire a long resting period.

When the larger specimens have filled their ots with roots, and the soil is in good con- ition, they will flower freely for two or three ears without being repotted, but with a big oot system they will need copious supplies f water, and liquid manure occasionally.

The soil most suitable for growing Eucharis nsists of two-thirds rich, turfy loam and ne-third fibrous peat, or leaf-mould enriched ith a small quantity of decayed cow manure, igeon dung, or sheep dung, and lightened by dding silver sand. A free drainage is ssential to success. This Eucharis needs lenty of water when growing freely and in ood condition, but care must be taken that he soil does not become stagnant with oisture, or the tips of the roots will perish.

Of late years there have been many failures ith Eucharis from the Eucharis mite. The est is favoured by allowing the plants to get n a sickly and generally bad condition, which ay be brought about by over-watering and ot employing sufficient fire-heat when the ulbs are making their fresh growth. If a ulb becomes sickly and does not improve, he mite quickly attacks it; if the pest is ot checked in its early stages on sickly bulbs reat difficulty will be experienced in getting rid of it. The Eucharis mite is one of the most destructive pests the cultivator of indoor plants has to contend with, but, if the Eucharis plants are grown under clean conditions and kept free from other insects, there is no plant of easier cultivation or that requires less attention to obtain good results. The mite does not usually attack clean, healthy, vigorously growing plants. Some growers recommend that Eucharis infested with mite should be destroyed at once; I do not advise that drastic measure unless they are in a very bad state. As soon as the pest is discovered, shake the soil from the roots, place them on a dry shelf, sponge them daily with a dry sponge until all decayed matter is removed and the plants free from the mite, then transfer them to small pots, and place them in a moderate bottom heat, without water, until they have made fresh roots and foliage. At that stage they should be watered sparingly for a time, but, as soon as they get well established, water may be used more freely. The plants should be shifted into larger pots when necessary.

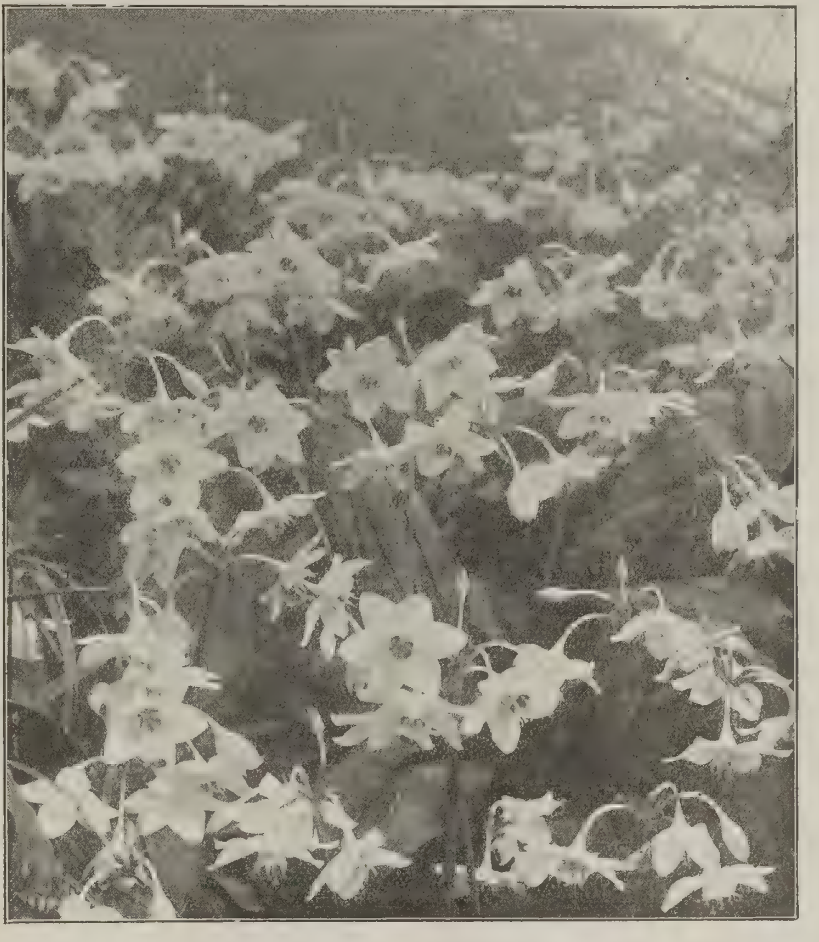

FIG. 105.—WELL-FLOWERED PLANTS OF EUCHARIS GRANDIFLORA.

Mealy bug often attacks Eucharis, and, should there be any of that pest in the house where they are growing, the mealy bugs will soon find their way to them, and once a plant is attacked, the bug is not easily got rid of. The best and safest plan is to keep the houses free from insects. If mealy bug does appear, syringe the plants on frequent occasions with soot water, which is a reliable remedy, whereas insecticides are not always safe to use, as the succulent leaves are porous and tender, therefore very susceptible to injury from strong specifics.

When the roots have become well established in the fresh soil and are filling the pots, flower buds will develop freely. The plants will then require a little liquid manure once a week, also weak soot, cow, or sheep dung water. All these may be mixed together in equal quantities, or may be given alternately with good results.

Shade the plants from bright sunshine.

Many cultivators have endeavoured to obtain two or three crops of flower in one season by resting the plants for a time. I do not recommend that plan. The plants, being evergreen, should not be dried off too much or too often. The attempt to get several crops of flower in one season always has a tendency to weaken the tubers, and at the finish, when they are weakened, the mite soon makes its appearance.

E. candida is a most invaluable species, especially where small white flowers are in request. The flowers are freely produced. The peduncles grow about 18 inches tall, and bear at their summit an umbel of from six to ten pure white flowers, each with a prominent corona. The blooms expand successively, two or three flowers being usually open at one time.

Other compact, useful species are E. Mastersii, which has stems about 1 foot high and white flowers slightly striped yellowish green, and E. Sanderi, a plant of similar growth to the last, with white flowers striped primrose. These species require similar treatment to that afforded E. grandiflora, but, as they are not such strong growers, they do not require so much pot room to grow them successfully. *John Heal, V.M.H.*

RUELLIA MACRANTHA.

AT one time this beautiful indoor plant was common in gardens, but is now seldom seen; it is, however, worthy of more general cultivation. The large rose-coloured flowers are very handsome, and a well-grown specimen is a very decorative subject for the greenhouse or conservatory.

The plant may be readily propagated at this date by means of cuttings, placed in a warm close case. Like those of all members of the Acanthaceae, internodal cuttings root readily. The plant is best grown in a temperature of 55° to 60°, but when in flower it will withstand cooler conditions. *C.*

MANURIAL TREATMENT OF APPLES, PEARS AND PLUMS.

At the commencement of the present century the subject of the supply of manure for the fruit and vegetable crops in the garden began to occupy seriously the minds of those most concerned; and the question ever present was, "With what can we replace the shortage of stable manure?" That had long been the problem confronting a large percentage of owners and occupiers of gardens large and small, and of many descriptions. Waste products at once had more attention and consideration than they had yet received from the gardener. Even the refuse of his own garden was viewed with more appreciative eyes than hitherto.

In the "rubbish of a garden" is a rich source of plant food; and to prove this a series of experiments were conducted in 1899 with Apples, Pears and Plums, and the usual vegetable crops grown in a garden.

Four plots of nearly ¼ acre each were set apart for these experiments, neither plot being able to affect the other, each being separated by a path left undisturbed at the breaking-up of the land, and not less than four feet in width. The paths were of grass. Across each of the four plots from east to west were planted two Prince Albert Apple trees in bush form, two Czar Plum trees in bush form, and two Williams's Bon Chrêtien bush Pears. They were planted nine feet apart, and the Apple, Pear and Plum alternately on each plot, Nos. 5, 6, 7 and 8.

Plot No. 5, from 1900 to 1920 inclusive, received no other fertiliser than that supplied by the burned and decayed refuse of the whole garden, which, after 1905, was nearly six acres in extent, and therefore much larger than the four plots combined, but at no time after 1905 was the whole supply of that material used on Plot 5, the surplus being used for fruit trees and vegetables not under manurial experimentation. The decayed rubbish was applied in winter under the conditions usual in the application of stable manure, and at the rate of 16 tons per acre.

Plot 6 was manured with stable manure alone, and at the same rate as above-named, viz., 16 tons per acre.

Plot 7 was manured with various inorganic fertilisers, obtainable in almost every town, the combinations varying, as well as their proportions with the kinds of vegetables planted.

Plot 8 was manured with stable manure at the same rate as on plot 6; supplemented by inorganic fertilisers of the same kinds, in the same proportions to the same kinds of crops as upon plot 7. Therefore this plot was the most costly and most heavily manured of the group.

No manure was specially applied to the fruit trees planted across plots 5, 6, 7 and 8; they were deliberately left to forage for themselves, as they are left to do in many gardens of all sizes.

The following are the results, or returns, from the Apple, Pear and Plum trees across the respective plots; the results having been our objectives during the whole of the 21 years, no matter whether they be good or bad, satisfactory or unsatisfactory:—

	Lane's Prince Albert Apples.	Williams's Bon Chretien Pears.	Czar Plums.
	lbs.	lbs.	lbs.
Stable manure and inorganic fertilisers.	2,468 1st Grde.	1,039 1st Grde.	1,386 1st Grde.
Stable manure only.	2,335 1st Grde.	1,121 1st Grde.	1,321 1st Grde.
Garden refuse only.	1,665 2nd Grde.	860 1st Grde.	1,334 2nd Grde
Inorganic fertilisers only.	1,537 2nd Grde.	937 2nd Grde.	522½ 2nd Grde
	8,005	3 957	4,563½

The inorganic fertilisers consisted of nitrate of soda, sulphate of ammonia, mineral superphosphate; kainit, iron sulphate, sulphate of magnesia, and sodium sulphate, the combinations varying with the crop. The combinations invariably were made immediately before application to the respective crops.

The table shows that Apples (Lane's Prince Albert) yielded the best crops, Plums second, and Pears third; that the mixed or combined stable manure and inorganic fertilisers produced the heaviest weight of Apples and Plums, and that garden refuse yielded 863 lb. more fruit of the three kinds than inorganic fertiliser alone.

Of the three kinds of fruit trees manured with four kinds of manure, including decayed manure and garden refuse, those manured with—

	lbs.
Stable manure and inorganic fertiliser produced	4,893 fruit
Stable manure only produced	4,777 ,,
Garden refuse only produced	3,859 ,,
Inorganic fertilisers only produced ...	2,996½ ,,

Two trees of each kind, under the four different conditions of manuring, were left to forage for themselves.

Wood ash, the residue of burned prunings, was preserved apart from other burned refuse of the garden, and applied to certain vegetable crops. *J. Udale.*

VEGETABLE GARDEN.

RUNNER BEANS.

At this date Runner Beans may be sown either in boxes or in the open, the former method being preferable. Boxes about eighteen inches long, fifteen inches wide, and four inches deep, will be suitable, crocking them carefully, and placing some rough leaves or litter on the crocks to facilitate free drainage. Nearly fill the boxes with a good, light compost. Press the seeds edgeways in the soil about two inches apart, and cover them with about one inch of soil, which should be made moderately firm. Water the seeds with a fine rosed can and place them in a cool house or frame.

As soon as they have germinated, allow the seedlings plenty of air, but protect them at night in the event of late frosts occurring. Water the roots with moderation at first, but give them plenty of moisture when the leaves begin to develop.

If the seeds are sown out-of-doors select an open, sunny situation, and rich friable soil. Plant the seeds by means of a trowel, placing each seed edgeways, about three inches deep and one foot apart. Plant the seeds in double rows, about the same distance apart, draw a little earth up to them with the hoe, and place the sticks in position forthwith, as these will serve as a protection if the weather is cold. Prizewinner and Scarlet Emperor are two of the best varieties. *T.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Gardeners' Wages.—I fail to see why *S. H. G.* (page 203) should term it a grievance because we are exempt from paying unemployment insurance. Many of us would consider it a waste of money and a farce were it made compulsory. He remarks we have to live when out of work, but he should remember that generally, although not in every case, the best men get the best chance, and that the scramble for existence, especially in the South of England, is caused by the half-trained gardener of the handyman type. Pre-war gardeners who served their country can look after themselves, but allowances must be made for ex-Service men, whether pensioners or not, that are partly trained and can be utilised according to their abilities, as they have every right to this consideration. *S. H. G.* remarks that by the time a man's family is grown up and when he is usually getting on in years, a reason is found for discarding him for a younger and cheaper man. What class of private service is *S. H. G.* accustomed to? He also remarks he is n aware that unemployed gardeners could dra the dole. I do not know what they can do the present time, but soldier-gardeners we provided with means for drawing unemplo ment pay for the first year after demobilisatio *G. W. K.* (page 151) remarks: "It is a pi their former employers do nothing for them their old age and failed to pay them a fa wage during the time they were having t best out of them." I would tell him, whatev his position in the profession, that it is usu for an English lady or gentleman to treat the gardeners with consideration who have serv them well and long. *T. W.*

Copper Sulphate as a Tree Cleanser.—I c fully endorse the opinions of *Market Grow* (page 202) so far as they concern the value a solution of copper sulphate for cleansing t bark of fruit trees, and agree with him furth in preferring handling it to caustic so washes. In this relation your contributor remarks remind me of a visit in the neig bourhood of Wisbech some years ago, wh the subject of moss and lichen destruction ca up for discussion. It was stated that while mo growers pinned their faith to caustic sod there was a small colony in the district whi positively refused this specific and used noth except copper sulphate. Shortly afterwards, was able to confirm this on the spot. T purest procurable grade of sulphate of copp in crystals was employed at the rate of 4 to 40 gallons of water (exactly the streng stated by your correspondent), and the cond tion of the trees was a pleasure to see. The was not a trace of moss or lichen, and t bark was bright and clear in colour—in fac no caustic soda, lime or lime-sulphur soluti could have made it more attractive in appea ance. I raised the point of scorching, a found that it was so slight as to be negligib since no injury resulted. The dressing applied as a part of the annual routine, a the almost total absence of canker in t gardens supported *Market Grower's* conte tion that copper sulphate will hold th disease in check. I have since tried the wa on my own trees and those of others with co pletely satisfactory results. *W. Tiplow.*

——*Market Grower* may be interested to kno that I have used copper sulphate for the remov of lichen from trees of various kinds. I fir discovered its efficacy in this respect qui accidentally. Some years ago, on the outbrea of Coffee Leaf Disease in Uganda, we spray largely with Bordeaux mixture in our effor to combat this disease. I found that the ste of rubber trees growing amongst the Coff were cleared of lichen wherever the sp reached them. Afterwards I used this di covery in cleaning up the trunks of the rubb trees before tapping them. I also used t specific on lichen-infested trees of Orange, Li and Lemon, with excellent results. Since th I have used it on Apple trees and Gooseberr bushes. *E. Brown, Hillside, Doddingto Sittingbourne, Kent.*

Wireless Lectures on Gardening.—With rega to the paragraph "Wireless Lecture on Roses in *Gard. Chron.*, p. 193, I may state th this is not the first time that wireless broa casting has been used for the assistance horticulture. Mr. Richard Treseder, of Messr W. Treseder, Ltd., Cardiff, gives a short ch on current garden work every Wednesday eve ing from the Cardiff Broadcasting Station, h first address having been given on April *F. Hemingway, Mountain House, Caerphill*

——In the notice in *Gard. Chron.*, p. 193, of wireless lecture on Roses, it was stated that th was probably the first use of wireless broadcasti for the assistance of horticulture. I broadcaste a horticultural lecture from the Metropolita Vickers Wireless Broadcasting Station in Ma chester, on January 5, 1923. Reports state th the lecture was well received, and was di tinctly heard. My subject was "The Call the Garden." *L. E. Morgan, Stanfield Lodg Hyde Road, Gorton, Manchester.*

HENT INTERNATIONAL EXHIBITION.

(*Concluded from p.* 220.)

IN our report of the great Ghent Exhibition r readers will understand that we make no etence of describing in detail the exhibits in rly eight hundred classes provided, nor the ry many non-competitive displays. A couple of ues of *The Gardeners' Chronicle* would barely ffice merely to catalogue the individual hibits. In some of the Orchid classes three izes were offered, but in the majority of classes o only. All the classes were not filled, but numerous instances there were more exhibitors an prizes. The premier award in the more portant classes was generally a work of art esented by some prominent person.

Four works of art, each valued at a thousand ancs, were offered as special awards respecely by M. Mayrisch; the President of the ench Republic, by the Société Royale d'Agri- lture et de Botanique de Gand, and M. Tiller. he winners, in the order given, were M. FRAN- IS SPAE, Melle; M. LOUIS VAN HOUTTE, La inte; M. P. J. HARTMANN, Mont St. Amand; d Sir JEREMIAH COLMAN, Reigate—for the im- rtance and beauty of their exhibits. Messrs. AARENS and WILLE, Someghem, received the rincipal gold medal for their Azaleas.

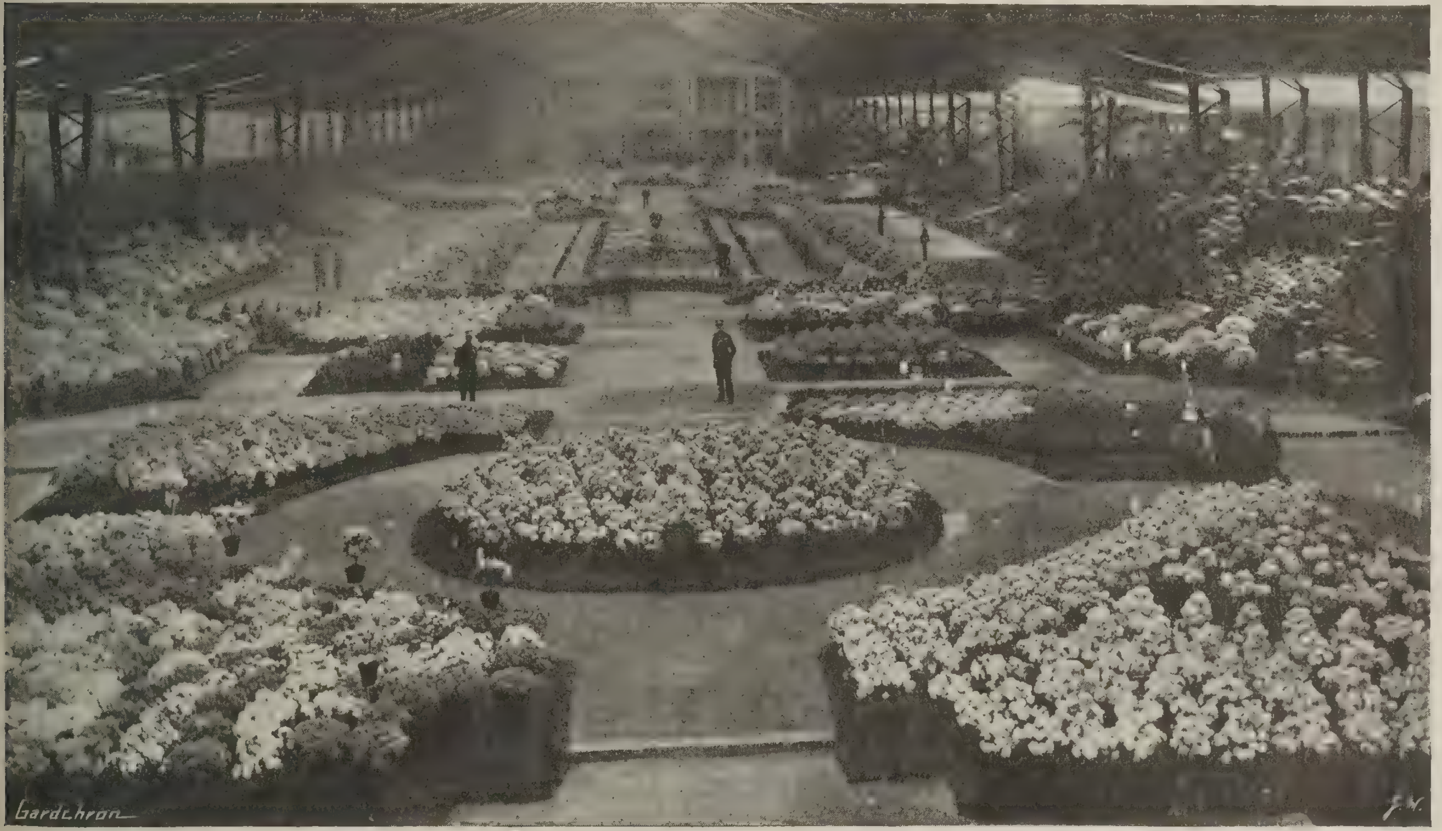

FIG. 106.—GHENT EXHIBITION: GENERAL VIEW OF THE EXHIBITS IN THE LARGE EXHIBITION HALL.

Gifts of special prizes were also made by the ench Government; M. Chevalier G. Roda, esident of the Royal Horticultural Society of edmont and Turin; M. Beretta, Milan; Dr. aillon, Ghent; M. A. de Smet, Ledeberg; the mte de Kerchove, governor of Flanders; essrs. Sanders, St. Albans; the Comte Chandon Brailles, Epernay; M. Firmin Lambeau, esident of the Royal Linnean Society, Brussels; . Ch. Dietrich, vice-president of the Cercle des chidophiles Belges, Brussels; and Sénateur de ast, Ghent. There were other generous donors, t enough has been mentioned to indicate the erest Continental horticulturists take in the inquennial displays at Ghent.

Orchids.

An important omission from our previous notes the Orchid exhibits was a reference to the autiful display of Odontiodas and hybrid lontoglossums, made by M. CHAS. VUYLSTEKE, of Loochristy. This successful raiser and superb cultivator is well known to Orchid specialists in Great Britain, as on numerous occasions he has exhibited a few wonderful and rarely beautiful Orchids at London shows. On this occasion he exhibited about sixty plants, every one in perfect health and each carrying a magnificent spike of the loveliest flowers imaginable. His Odontiodas arrested the attention of everyone, and the ladies as well as specialists, vied with each other in exclamations expressive of wonderment and admiration. Such an exhibit at a Chelsea show would cause equal excitement. Odontioda Vulcan, with scarlet and cream flowers of large Odontoglossum size, appealed to many; O. Etincelante, of vivid crimson scarlet hue, comes close to the scarlet Odontoglossums many growers hope to raise; O. Meteor, white and rich red-brown; O. Titan, rose pink, with rosy carmine shading, and white apex to the lip, is of grand form and size, while O. Crépuscule, white and red-brown, with apricot yellow lip, is an arrestingly beautiful variety of excellent form. O. Princesse Marie José, exquisitely coloured with heliotrope, mauve purple and cream-white, won the admiration of the ladies who thronged the Orchid salons all day long. The hybrid Odontoglossums were scarcely less beautiful than the Odontiodas, but the latter, with their fine form and rich colouring, were the feature of a wonderful display.

Novelties.

There was no "New Plant" table or room at Ghent, consequently the task of discovering novelties not entered in a particular class was no easy one. In addition to plants described in our previous issue the following are deserving of special mention, though not all are new:—

Cytisus Mrs. A. Dorothy Walpole.—A new hybrid raised at Mount Usher, Wicklow, and exhibited by Messrs. W. WATSON AND SONS, The Nurseries, Killiney, Co. Dublin. It appears to have the somewhat erect habit of C. Dallimorei and the medium-sized flowers are deep rose on the outside, pink within, while the keel is bright brownish crimson. As shown this new Cytisus is very free flowering and attractive.

Chatillon Rose.—A new hybrid polyantha Rose, which may be briefly described as a bushy, polyantha form of the popular American Pillar. The plants are from 2 ft. to 3 ft. high, and carry large heads of beautiful blooms, which mark the variety as suitable for bedding. The individual blooms are almost as large as those of the variety to which we have likened it, but the flower clusters are not so dense. The rich rose pink colouring is most attractive, and enhanced by the paler bases of the petals and the pale yellow cluster of stamens. A few stamens are petaloid, consequently the blooms are not quite single. Nevertheless, they are elegant in form, and the small amount of doubling is useful, inasmuch as it makes the blooms last in perfection for a longer period than if they were quite single. Raised and shown by M. A. NONIN, Chatillon, Paris.

Double Gerberas.—One of the attractions in the French section was a group of Gerberas with double flowers. Although not quite new, they are novel, and we do not remember having seen them grown in England. The doubling is very yellow and the style of the blooms is suggestive of certain forms of Callistephus and Chrysanthemum, or the double Marguerite. The disc florets have developed into ray florets and decrease in length towards the centre. In many of the flowers exhibited the original ring of the ray florets extends well beyond the central group, and in these the likeness to an Anemone-centred Chrysanthemum was suggested. The several varieties shown were of charming colouring, ranging from pale pink, through rose and salmon to yellow and red shades, but none had the intense colouring of the original Gerbera Jamesonii. These double Gerberas were exhibited by M. E. DUBOIS, Cap d'Antibes, France.

Rose Souvenir de H. A. Verschuren.—A hybrid Tea Rose of good form, but not freely flowered as shown. The blooms are shapely and of Richmond shape, and the colour is soft creamy Apricot. Exhibited by Messrs. OPDEBEEKE AND SONS, Putt, near Malines.

British Section.

To write that we were proud of the British section is to state our feelings as mildly and modestly as possible. When we despatched our previous notes the full list of those traders who contributed unselfishly to the combined central exhibit of the British section, arranged by Mr. A. JOLIS, was not available. We now give it because it is only fair their generous efforts to maintain the prestige of British horticulture on the Continent should be recorded :—

Cut Flowers.—Mr. W. E. Wallace, Eaton Bray, Carnations; Mr. Guile, Newport Carnation Nurseries, Carnations; Messrs. R. H. Bath, Wisbech, Daffodils; Mr. Walter Hemus, Hampton, Carnations; Mr. H. Mason, Hampton, Carnations; Mr. W. H. Page, Hampton, Carnations, and some fine Liliums; Mr. W. Sherwood, Hampton, Carnations; Messrs. Low and Shawyer, Roses; Messrs. Mount and Sons, Canterbury, Roses; Mr. E. Victors, Hampton, Carnations; Messrs. J. T. White and Son, Spalding, Daffodils; Messrs. Charlesworth and Co., Haywards Heath, Orchids; Messrs. J. E. Poupart and Son, Barnham Junction, Carnations; Mr. Arthur Stevens, Cheshunt, Roses; Messrs. E. Stevens, Ltd., Cheshunt, Roses; Mr. C. Engelmann, Saffron Walden, Carnations.

Plants.—Messrs. Cragg, Harrison and Cragg, Heston, Crotons; Mr. C. Bause, South Norwood, Dracaenas; Messrs. W. Artindale and Son, Sheffield, Primulas; Messrs. P. Ladds, Swanley Junction, Heaths, Genistas, Spiraeas, and Hydrangeas; Mr. Robt. H. Page, Forest Gate, specimen Nephrolepis; Mr. Milton Hutchings, Hillingdon, Genistas, Heaths and Marguerites; Messrs. Sweet and Sons, Ltd., Whetstone, Heaths and Genistas; Messrs. Butler Brothers, Bexley Heath, Cinerarias; and Messrs. Evans and Sons, Sidcup, Genistas.

Fruit.—Messrs. R. Veitch and Sons, Exeter, Apples; Mr. O. Esche, Lea Valley, Cucumbers; Mr. T. Rochford and Son, Broxbourne, Cucumbers; several private growers who do not wish their names to be mentioned also sent dishes of Apples and Pears.

French Section.

Our French friends had a space similar to that provided for the British exhibitors (see Fig. 107). They also had a big annexe, corresponding to ours, but on the opposite side of the main entrance (see Fig. 108). The horticulturists of La Belle France are usually able to give Britishers a few points and then beat them in the matter of artistic display, but on this occasion their exhibit as a whole fell short of what is generally expected, in regard to design and arrangement. Something must have gone wrong somehow, somewhere, because there was an abundance of good material, and many large and interesting plants, which would have served to produce a very fine display had time and forethought permitted.

Carnations exhibited in large vases, grouped in some of the beds, were of excellent size and colour, and although certain varieties were of good form there were many of a slightly tougher build than the best of British raising. In size the blooms reached a high standard, showing that the growers of the Nice district are first-class cultivators. Masses of Ulrich Brunner and Frau Karl Druschki Roses, of fine size, and with long stems, such as are sent to Covent Garden flower market from the South of France, were arranged round specimen Palms and other plants.

Messrs. Vilmorin-Andrieux and Co., Paris, exhibited extensively in this section, and their rather formally arranged display contained very fine examples of early Lettuces, Spring Cabbages, Radishes, Cauliflowers and other salads and early vegetables. These made up an interesting collection of useful produce, but to our mind, the use of Primulas among the vegetables was not a success. This renowned firm also arranged large masses of Calceolarias representing a first-rate strain, but their Cinerarias excited our admiration most of all. There were several hundred plants, perfectly grown, and finely flowered, and although cactus-flowered sorts were much in evidence, the La Parisienne strain, with medium-sized flowers, attracted general attention. The white, pink, rose, soft blue and mauve coloured varieties were charming; for greenhouse or room decoration these Cinerarias are extremely useful, as they combine elegance with a certain compactness of habit, and show a fair range of colours to meet most tastes. This strain reminded us somewhat of the Feltham Cinerarias sent out a few years ago by Messrs. Jas. Veitch and Sons.

The artistic value of many fine Palms sent from the South of France was not taken full advantage of; a giant Phoenix canariensis, for example, would have made a superb centrepiece, while four big Agaves—one a variegated form of A. americana—were more or less hidden by Palms and four huge Furcraea, possibly F. longaeva, would have looked well associated with the Palms and Agaves, to give a rich tropical effect, indicating the lovely climate of Golfe Juan. Groups of Orange trees, in flower and fruit, were much admired by the ladies, to whom the exquisite beauty and fragrance of Orange blossom always makes a sentimental appeal. The graceful and beautiful Genista monosperma, too tender for most British gardens was displayed liberally by M. Guillaud, of Nice, with Oranges and Carnations. The Carnation displays made by MM. La Floride and the Société d'Horticulture, Antibes, were much admired, and two outstanding varieties were the bright red Poilu, and the big pink Baronne de Lassis, both of which were shown in quantity.

Among the Hydrangeas shown by M. Fargeton, Angers, the variety Splendens was of outstanding merit, as it has fine heads of deep pink "blooms" of excellent form and size; it is a lovely variety and of a type that appeals to growers of these plants for market. Near the interesting plants from Golfe Juan, and possibly belonging to them, we noted a large vase filled with the dense pyramidal spikes of Echium fastuosum, each spike carrying hundreds of tiny blue flowers.

M. Rivoire contributed Sweet Peas and many Gerberas, in beautiful shades of colour, and in one corner in the section MM. Lachaume and Co. displayed a small collection of floral designs of great beauty.

Tulips and Amaryllis.

Considering the size of the exhibition and the time of year, bulbous plants were not exhibited so extensively as might have been expected. Reference has been made already to the Daffodils in the British section, and so far as we could observe these were the only representatives of the Narcissus family on view.

In the Dutch section, however, Tulips were grouped effectively and extensively in two great displays, with Hippeastrums in the centre. The flowers were of good quality and disposed in vases and bowls of various sizes, thus making an artistic and effective contribution to the show. The group as a whole occupied a space about as long as the R.H.S. Hall and about a third of its width; there were several thousands of blooms sent by an association of Dutch growers. The varieties which stood out most conspicuously by reason of their colour or the number of their blooms were Prof. Francis Darwin, Pride of Haarlem, Baronne de Tonnaye, Isis, Ariadne, Mme. Krelage, W. F. M. Copeland, Clara Butt, and La Tristesse.

Between the two flanking groups of Tulips, Messrs. W. Warmenhoven and Son, of Hillegom, arranged a brilliant group of Hippeastrums. The scarlet, crimson, orange, salmon and pink varieties, all with flowers of good form and size, made up a splendid exhibit just in the right place, as the plants were admirably disposed and were well set off by a background of Palms and Shrubs. Fortunately, Messrs. Warmenhoven avoided the frequent mistake of crowding their plants. We made no attempt to discover varietal names, as it is more important to general growers to know that a certain strain of Hippeastrums gives finely-formed flowers and good colouring. We would add that the Hillegom firm has a fine series of white-flowered forms and some of the charming old rose shade which is very attractive, but not yet too well represented among Hippeastrums.

Camellias.

A grower with a long-standing reputation for the cultivation of true stocks of Camellia varieties is M. Victor de Bisschop, Tronchiennes, and his exhibit in the main building received the attention it deserved from the many people who love these old flowers for old-tin sake and others who are finding beauty interest in them. M. Bisschop's collection not an extensive one, nor were the plants v large, but the lateness of the season Camellias would account for this. However, had an abundance of blooms on his examples Chandleri elegans, Fleur de Pécher, the Donckelari, and Marguerite Caleoni. Judg from observations made in the Ghent dist and conversations with several growers th appears to be a distinct revival in favour Camellias, which is a little difficult to und stand seeing that modern tastes in flowers in favour of those which have long stems are suitable for the floral decoration of home. We freely admit, however, that a Camellia bloom, on its little branch, set w deep green, shining leaves, is a charming pict alone in a specimen glass.

Hydrangeas.

Hydrangeas have been referred to incidenta in earlier notes, and in connection with French section, but it would not be fair pass unnoticed the very fine exhibits of th popular, if somewhat formal, flowering plan made by M. Emile Lossy, Mont St. Ama and M. Francois Spae, of Melle. Both th growers contributed superbly grown plants quantity; the former had the deep rose p variety Coquelicot, in fine form, and a sma flowered, fringed, pink variety named Satin that is very interesting, but hardly likely find favour with market growers. M. Spae particularly successful with the variety Maréc Foch, which carried large, compact, shap heads of bloom of a charming shade of rose pink.

These and other exhibitors showed wh pale pink, and blue Hydrangeas, and some given numerous varietal names to blue for but we could not find sufficient distinction warrant this wholesale naming where the dif ences of form or shade were more imagin than real.

Anthuriums and Bromeliads.

In former years Bromeliads occupied m more space than in 1923. On this occas Vriesias were the chief representatives of interesting group of plants now rarely cu vated outside botanic gardens. H. Spae, M. Clercq, and Messrs. Van Acker and Ma hout were the principal exhibitors. The la named firm, of Mont St. Amand, secured award for an attractive new hybrid of dw habit, with broad bracts of brilliant orange- on the flattened spikes. This was not nam but the label attached gave the parentage Encholirium Saundersii × Vriesia Regina; it certainly a very attractive plant.

Most of the Anthuriums were grouped w great effect in one of the Orchid salons, and, always, when the plants are well flowered, th were the cause of many quaint comments a received considerable admiration. In the ma rity of the fifteen classes provided Anthuriums M. Arthur de Smet, Le berg, won the premier awards, but was beaten by M. Jean van de Put of Meirelbeke, on three occasions. M. de Sm had an excellent collection of twenty-five variet of A. Scherzerianum, of varied colouring, many with rounded or oval spathes, which their form show that even this old stove pl has not escaped the attention of those rais who, possessing the old florist's instinct, des to make every flower a formally round one. group of rose-coloured forms of A. Scherzerian was pleasing, but not so effective as groupi of the scarlet varieties or the cream-grou scarlet marked A. Rothschildeanum. The fi plant of the red A. Scherzerianum carr twenty-eight splendid spathes, while the sp men showing flowers of the highest developm in size and form carried eleven spathes of ext ordinary size and brilliance, and was a sup example of M. de Smet's skill as a cultiva and raiser; the felicitations of the Jury w added to the award made to this plant. premier dozen plants of the rose-coloured Scherzerianum Mme. Dalliere, shown by de Smet, fully merited all the admiration wed upon them. The examples of Anthu- m Andreanum were not so excitingly attrac- as the plants of the A. Scherzerianum tion, but probably the green shaded and dull k spathes of several varieties shown make ore urgent appeal to Continental tastes than our own. Certain spathes were of extraordi- y size, but, to our mind, not beautiful. The t new seedling, A. Andreanum, had a green d rose-coloured spathe, and was shown by A. DE SMET, while the best new Belgian seed- g variety of the A. Scherzerianum type was a iety with an enormous speckled spathe asuring 8½ in. long by 5¼ in. in width.

Cacti.

I. FRANZ DE LAET, of Contich, has a world- le reputation for succulent plants. This utation has taken many years to build up, l the war period made it difficult for M. de et to maintain his collection. At the present ne, however, we question whether such an tensive trade collection is to be found else- ere in Europe.

At the exhibition, M. DE LAET arranged a ry large exhibition of Cacti close to the itish section; nearly all the plants were dded in the light soil, with some large stones ong them, and thus a somewhat realistic ect of arid Mexican or Texan vegetation was oduced. Many of the specimens of Euphorbia d Cereus were from 6 ft. to 8 ft. high, and ese erect columns gave rise to considerable citement among visitors not familiar with these w-growing subjects. In the foreground were puntias, rounded Mamillarias, small Cereus. d a few Aloes, while among some pebbles . DE LAET placed a few of the rarer South frican Mesembryanthemums which, as Mr. N. E. rown has pointed out in our columns, are so ke the stones among which they are found a state of nature as to be scarcely discernible erefrom.

We have only space to name a few of the pecially interesting plants which were repre- nted by good specimens: Cereus Ehrenbergii cristata, C. cinerascens, Mamillaria bombycina, M. rhodantha, Pilocereus senilis, and Cereus dubius.

A Dutch Alpine Garden.

Messrs. ALPINA, of Wassenaar, arranged a quaint little garden in the great hall, in front of the bandstand. This attracted a great deal of attention, as it was a design suitable for small gardens. A low terrace was assumed—the level of the bandstand served—and the exhibit commenced with a low retaining wall of comparatively small stones, which allowed sufficient space for those Alpine plants which delight or will grow in such positions; for the occasion Messrs. ALPINA had planted this wall-garden with Alpine Phloxes, Alyssum saxatile, Iberis, the dwarf New Zealand Veronicas, Alpine Auriculas, Cheiranthus Allioni, and Aubrietias. In the foreground a small paved path led up to the wall-garden, passing between two small lawns and encircling an old-time sundial. Between the paving-stones were Saxifrages, Thymus, and other lowly plants suitable for such positions. On each of the lawns a very low rock-garden served to display numerous interesting Alpine plants. The arrangement of the stones and plants was admirable; it would have been easy to spoil the whole effect by the use of too many stones or those of too large a size, and fairly easy to have used an excessive number of plants in an endeavour to create effect. All this was avoided, however, and the restraint displayed was commendable. Small groups of Gentians, Viola species, alata Irises. Daphne Cneorum, Saxifragas, Primulas. Phloxes and Iberis were among the principal subjects planted, and if the idea the Dutch firm desired to convey was that an amateur with a small garden might cultivate and enjoy beautiful Alpines without a very heavy cost, it succeeded, and doubtless many visitors left the exhibition with a determination to go and do likewise. As costly plants were not used nor those difficult to cultivate, those who endeavour to reproduce such a garden at home need not suffer any disappointment.

Miscellaneous.

Leading Belgian florists gave demonstrations of their art in a series of rooms near the entrance hall. All the designs were attractive, many were extremely beautiful and others were very quaint. In some instances the floral decoration of a dining-room or drawing-room was shown, and there were numerous examples of dinner-table decorations, one being carried out with blooms of the new, white, carmine-edged Azalea Albert-Elizabeth. We are of opinion that floral art in England compares favourably with that demonstrated at Ghent.

To those concerned with economic plants the exhibits showing the various subjects cultivated in the Belgian Congo proved unusually interesting. These were grouped in one large salon, and included Sansevieria, Musa, Landolphia, Hevea, Ficus, Sterculia, Costus, Cordyline, Cyperus, Piper, Coffea, Carica, Arenga, Entada (pods 4 ft. long), Cotton, Sugar, etc.

Some very fine Gros Colmar Grapes, from Hoylaarte, the famous Belgian grape-growing centre, were superb examples of fine size and finish; the fruits were in excellent condition and cut the day before the show opened, from vines still carrying an abundance of foliage. Belgian Pears were also of high merit and looked very attractive with tin-foil wrapped around their stalks; the chief varieties were Passe Crassane and Bergamotte Hertrich. Near these fruits we noticed a large and instructive exhibit of encased specimens of the principal pests and diseases of fruit crops, showing the life histories of each and giving methods of eradication and control.

The fine group of Clematis shown in the British section, and which the Queen of the Belgians admired so much, was from Mr. L. R. RUSSELL, Richmond, whose name we inadvertently omitted on p. 217.

Outdoor Exhibits.

Collections of Bay trees were displayed outside the buildings, and the enormous pyramids and standards brought by M. J. HARTMANN, of Mont St. Amand, were the cause of considerable

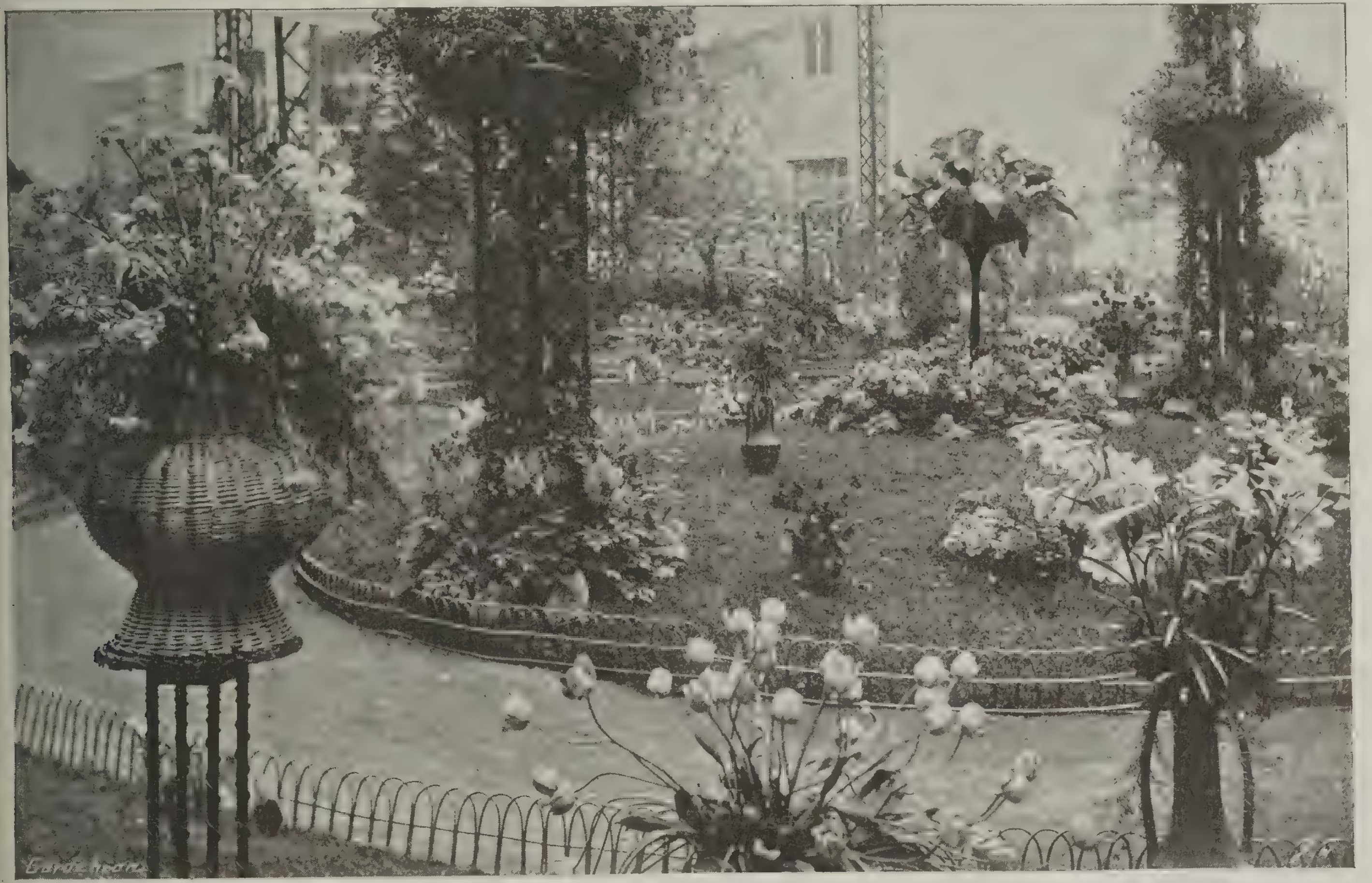

FIG. 107.—GHENT EXHIBITION: VIEW IN THE BRITISH SECTION

wonderment by visitors unused to the giant specimens to be found before the war in many of the older establishments around Ghent.

The Aalsmeer growers submitted Confers in great variety, and wonderful collections of clipped trees in Box and Yew. M. **Braeckmans**, of Wetteren, and Messrs. **Hilverda and Co.**, of Aalsmeer, vied with each other in demonstrating the variety of weird forms into which it is possible to train these evergreens, and there was little to choose between the Belgian and Dutch firms. There were ships of many kinds, church steeples, chairs, tables, stools, tables set with wine glasses and decanter; trees with birds just taking flight, peacocks, pheasants, cocks, hens, turkeys, storks, lions, bears, monkeys, dogs, squirrels, moles, kangaroos, etc., etc.; a curious and extraordinary combination of the fauna of the farmyard, woodland, forest and jungle, with the imitations of the joiner's art "done in Box and Yew."

The prettiest and most attractive outdoor exhibit was a formal garden and an adjacent alpine garden, arranged by M. **Jules Buyssens**, who is in charge of the trees and open spaces of Brussels, but also carries on a nursery business. The sunk formal garden, with alpine flowers in the walls, beds of Tulips and Violas in the centre, and of Wallflowers, Polyanthuses, Daisies and Violas on the surrounding terrace, was a joyful arrangement, and being placed close to the main entrance it served to create a good impression upon the inflowing multitude of visitors and to raise bright anticipations of the show proper—anticipations which were thoroughly fulfilled. M. **Buyssens'** alpine garden was equally attractive, and its little seat from whence the whole exhibit could be viewed was cunningly placed in the shelter of choice Conifers. M. Buyssens deserved and won high commendation for his display.

SOCIETIES.

NATIONAL ROSE.

The Spring Show of the National Rose Society, held at the Royal Horticultural Hall, Vincent Square, Westminster, on Friday, the 20th inst., was a crowded function. Pathways were thronged throughout the day; at times the visitors formed a long queue patiently waiting their turn to view the various exhibits, and especially the new Roses. For an early spring show, and considering that all the Roses were grown under glass, the hall was well filled, and the amateur section was productive of much competition. The nurserymen's groups were good and representative, and several new Roses were shown, two Gold Medals and two Certificates of Merit being awarded.

Awards.

Gold Medals.

Deception (H.T.).—This most quaintly named Rose is coloured rose pink, slightly silvery on the reverse. The bloom is deep and very full, with a pointed centre and is Tea-scented. It is a good exhibition variety, and has large green foliage; the stems are uncommonly stout. Raised by Messrs. **George Beckwith and Sons**, Hoddesdon.

Mrs. Tresham Gilbey (H.T.).—A large exhibition Rose of first-class quality. The bloom is very full, has a pointed centre, and is coloured pale salmon-pink. The stout stem bears deep green, slightly glossy foliage. Raised by Messrs. **Chaplin Bros., Ltd.**, Waltham Cross.

Certificates of Merit.

Mrs. Beckwith (Pernetiana).—This variety attracted a great deal of attention. As shown the colour is creamy citron-yellow, with a deeper tone towards the centre. In the open, however, it should attain much deeper colour. The bloom is long and pointed, a trifle inclined to be loose, with heavy, substantial petals and stout stem; it has a faint Tea scent. The foliage, as with all Pernetianas, is glossy. Raised by Messrs. G. **Beckwith and Sons**, Hoddesdon.

Lady Charmion (H.T.), Decorative.—An arresting tone of scarlet-red, shading when fully open to cherry-red; the bud is almost crimson. The petals are reflexed, and form a pointed centre to the bloom. It has a faint scent; the foliage is light green. Raised by Messrs. **Bees, Ltd.**, Chester.

Other Novelties.

Hypatia (H.T.).—A Rose of many shades ranging from silvery-pink to apricot, not over full, but very decorative, with slender, wiry stems and large, dark green foliage. Raised by Messrs. **Bees, Ltd.**

Joan (Polyantha).—A blush-pink variety with double flowers each about two inches in diameter, borne in trusses of about four to five blooms; the foliage is deep green. Raised by Messrs. **Bees, Ltd.**

Geraldine (H.T.).—A small flower of apricot colour. The foliage is similar to that of Richmond. Raised by Messrs. **Pauls**, Waltham Cross.

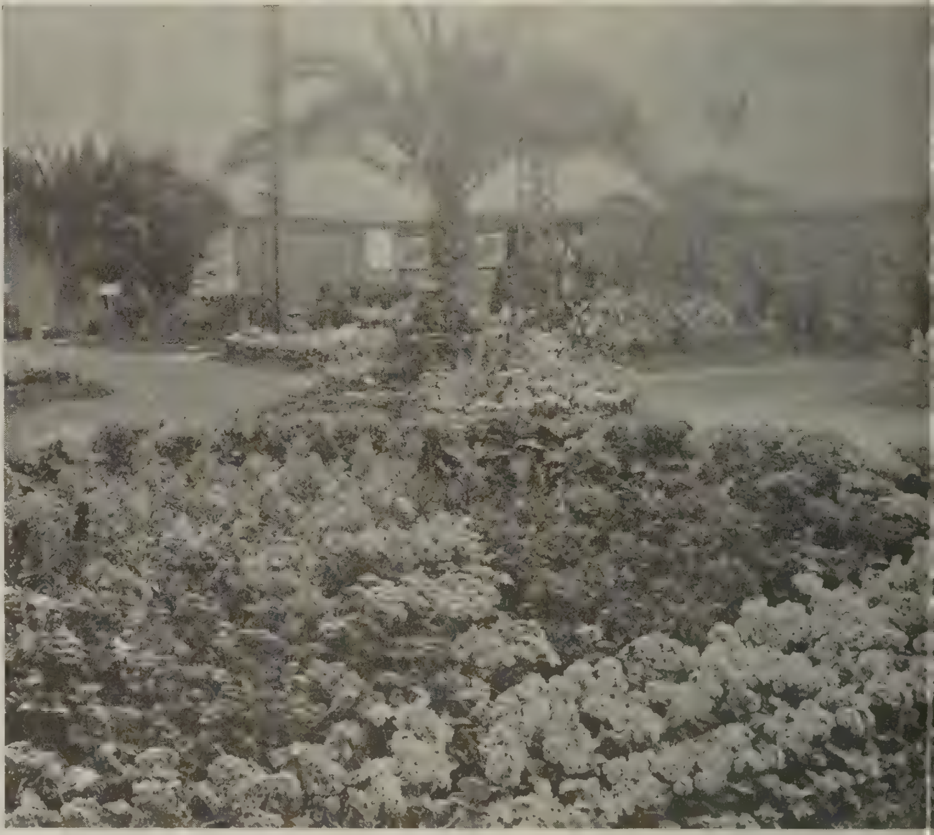

FIG. 108. GHENT EXHIBITION: VIEW IN THE FRENCH SECTION. (SEE PAGE 234).

Groups of Roses.

There were three bold groups, and for the time of the year the quality of the blooms was remarkably good. Messrs. **Chaplin Bros.**, successors to Messrs. W. **Paul and Sons**, of Waltham Cross, staged the winning group, and it was a fine and well-balanced display. There was a groundwork of dwarf H.T.s in pots with splendid, clean foliage. Amongst the various varieties, Madame Edmund Rostand (orange-yellow), Golden Emblem and Mrs. Tresham Gilbery (shaded salmon) were noteworthy. The centre of the group was composed of tall pillars of Tausendschon, Paul's Scarlet Climber and Seedling White Climber.

Mr. **Elisha J. Hicks**, Hurst, was placed second for a light and dainty group composed of standards, pillars and dwarfs. Polyantha varieties were conspicuous, and included choice half-standards of Ellen Poulsen, Orleans, and Edith Cavell. Paul's Scarlet Climber, Dorothy Perkins and Shalimar (creamy-blush) made an effective centre of Wichuraianas.

Messrs. W. **Cutbush and Son**, Barnet, were third, with a group full of unexpected surprises and pleasures, and it greatly appealed to us. Here again, Polyanthas and Wichuraianas predominated. Gruss an Aachan, rosy-pink, blush centre; Rudolf Kluis, cherry-red, both shown as new polyanthas. There also clusters of Baby Tausendschon, Delight, besides a goodly central pillar of sendschon. Amongst the dwarf bushes Sovereign, Willowmere and Ophelia.

There were two entries for a group of Roses. Messrs. B. R. **Cant and Sons**, chester, were first with an effective and r sentative display. Pillars of ramblers the background—Tausendschon, Fort Yellow and several others. In front of pillars were massed H.T.s; Josephine, a see from Isobel, of the same colour but a f bloom, was shown for the first time. cream-coloured Phoebe was good, and Q Alexandra of exceptionally rich colour.

Mr. **George Prince**, Oxford, also brough goodly collection, staging in a very able ma a round mass of Coral Cluster and Edith Ca backed by a pillar of Austrian Copper; it a charming combination. His fine cream-col Muriel Wilson was good, also Souv. de Ge Pernet, of pinky-red and yellow colour.

For a group of six pillar Roses, Mr. E J. **Hicks** won the first prize with magni specimens quite ten feet high and prof flowered, the varieties being Dorothy Per Lady Gay, Excelsa, Paul's Scarlet Cli Minnehaha and Shalimar.

Messrs. **Chaplin Bros.**, Waltham Cross, had some excellent specimens which inc their new hybrid Wichuraiana The Be which they have entered for the Cory The colour of this variety is bright sc crimson, with a white eye; the habit foliage are similar to those of American P Another excellent variety was Waltham R a small double variety with rosy-pink flo borne in large trusses.

Messrs. **Frank Cant and Co.**, Colch also staged a group of Wichuraianas no competition. Their two fine novelties, Yv blush-pink, a full, dense flower, and Snowf a semi-double white variety with golden sta were shown in good form. Another plea variety was Coronation, of cherry-red colour.

Mr. **Elisha J. Hicks** was placed first a group of Polyantha Roses in pots, C luster, Glory of Hurst and Lady Reading being specially fine.

In the Nurserymen's section for 24 blooms, ot fewer than 18 varieties, Messrs. B. R. ant and Sons were first with a fine selection, hich included good blooms of Caroline Testout, hoebe, Constance Casson (carmine and apricot), Irs. Beatty (new), golden, and Rev. Page oberts; 2nd, Mr. Elisha J. Hicks.

For 12 blooms of one variety, Mr. A. T. oodwin, Maidstone, again secured the first rize with twelve magnificent blooms of Iaréchal Neil, one of which also won the .R.S. Silver Medal offered for the best bloom a the Nurserymen's section; 2nd, Mr. E. J. icks, with Mrs. Henry Winnett, a new H.T. ariety, coloured crimson, shading to red, with pointed centre and sweetly scented.

[*Our remarks on the Amateurs' Classes are eld over until the next issue.*]

ROYAL HORTICULTURAL.

April 24 and 25.—Visitors to Vincent Square n these dates had nothing to complain of n regard to the extent and interest of the xhibits. Rhododendron lovers had a great day s these flowers were displayed in large numers by private and trade growers and contituted a special feature of the meeting. The iembers of the Rhododendron Society were very iuch in evidence and discussed Rhododendrons i most enthusiastic fashion.

Roses, Orchids, Daffodils, Tulips, early spring ɪwers and forced flowering shrubs were also hown freely, consequently the exhibition as a hole was bright and attractive.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the iair), Messrs. Jas. O'Brien (Hon. Secretary), urney Wilson (Assistant Secretary), C. J. ucas, The Hon. H. McLaren, W. H. White, . G. Alexander, Arthur Dye, S. W. Flory, enry H. Smith, Fred K. Sander, H. T. Pitt, ichard G. Thwaites, E. R. Ashton, J. Wilson otter, Frederick J. Hanbury, Chas. H. Curtis id Sir Frederick Moore.

Awards of Merit.

Odontoglossum Fabia var. Biddy (*eximium Aglaon*) from C. J. Lucas, Esq., Warnham ourt, Horsham (gr. Mr. Duncan). A grand dontoglossum, in which the features of O. glaon are displayed in an improved degree. he splendidly-grown plant bore a fine spike of rge flowers, heavily blotched with claret red a a white ground, the margins and tips being hite.

Brasso-Cattleya Apollo var. Majestica (*B.-C. igbyano-Mossiae × C. Mendelii*), from Messrs. owan and Co., Southgate. This section of rasso-Cattleya are all beautiful, and their relave merits are a question of degree. The present ariety is of large size, and of typical form, eing one of the best of the class; the flowers re coloured blush-rose, the front of the lip urplish, the disc yellow.

Cultural Commendation.

To Mr. James Penton, gardener to General ir Arthur Paget, Warren House, Combe Wood, ingston Hill, for a plant of the old Cyrtoodium punctatum, over four feet in height, and earing a many-branched spike of pretty yellow owers, the outer segments of which are spotted ith red.

Groups.

H. T. Pitt, Esq., Rosslyn, Stamford Hill gr. Mr. Thurgood) was awarded a Silver Flora ledal for a very pretty group, admirably rranged in green Moss and with Kentia Palms t the back, mingled with tall Cymbidiums, ncidiums, Odontoglossums and other showy rchids. The central plant was Miltonia Lyoth ith sixteen large flowers, and around it were iltonia Venus dulcies of great beauty, and nly surpassed by Mr. Pitt's M. Venus Fascinaor, which had previously gained a First-Class ertificate; a grand form of the now rare M. oezlii, varieties of M. vexillaria and M. Iyeana; M. Bleuana varieties, including the ery distinct Hessle variety, and many showy forms of Odontoglossum crispum, including Oakfield Sunrise. The hybrids included the new Odm. Beau Brummell and other novelties. Mr. Pitt's groups are always of botanical and scientific interest, and on the present occasion he showed a well-flowered, white Epidendrum Endresii, the tall, blotched, yellow E. Wallisii and their product, E. Endresio-Wallisii. A fine plant of Epidendrum (Nanodes) Medusae, some good scarlet Sophronitis, a selection of Stelis, Masdevallias and Octomerias; and rare species of Lycaste and Bulbophyllum were also noted.

Messrs. Sanders, St. Albans, were awarded a Silver Banksian Medal for a small, select group, in which Miltonias were a grand feature. M. Hyeana Wedding Bells bearing three spikes, each with five pure white flowers, with large maroon disc to the lip; M. Westminster, of similar type, with an equal number of flowers; forms of M. vexillaria, of great beauty, M. Butterfly and other Miltonias were included. Other choice plants were Brasso-Cattleya Crofutiana var. Colossa, with noble flowers, and the new and interesting Brasso-Cattleya St. Andre (B. nodosa × C. Dowiana), with lemon yellow flowers, having a broad rose-veined lip. Among the several very rare species was the dwarf Dendrobium arachnites.

Messrs. Stuart Low and Co., Jarvisbrook, Sussex, were awarded a Silver Banksian Medal for a selection of showy Orchids, arranged with Anthurium Scherzerianum varieties.

Other Exhibits.

Lady Aberconway and the Hon. Henry McLaren, Bodnant, N. Wales (gr. Mr. F. C. Puddle), showed Cypripedium Psyche, Bodnant variety (bellatulum × niveum), with a good flower in form near C. bellatulum, pure white, densely spotted with purple.

Dr. Miguel Lacroze, Bryndir, Roehampton (gr. Mr. Taylor), sent Brasso-Cattleya Cliftonii var. Bryndir, a fine rose-coloured flower with purple front to the lip, and a splendid specimen of Sophro-Laelio-Cattleya Meuse var. Bryndir, with large rose flowers tinged with salmon-red.

Messrs. Flory and Black, Slough, showed Cattleya Miguelito (Dowiana × Octave Doin) and C. G. T. Walker (Mendelii × Tityus), both of fine quality.

Floral Committee.

Present: Mr. H. B. May (in the chair), Sir W. Lawrence, and Messrs. Sydney Morris, G. Harrow, Hugh Dickson, John Heal, W. B. Gingell, H. J. Jones, C. R. Fielder. Donald Allan, W. Howe, J. Jennings, J. B. Riding, Andrew Ireland, M. C. Allwood. J. W. Barr, Clarence Elliott, W. B. Cranfield, Reginald Cory, H. V. Warrender, W. G. Baker, W. P. Thomson, Chas. E. Pearson, C. Williams, D. B. Crane, G. W. Leak, W. R. Dykes, H. W. McLaren, E. A. Bowles and R. C. Notcutt.

Rhododendrons were shown extensively on this date, and no fewer than fifty-three of the sixty-four novelties before the Floral Committee consisted of Rhododendron species, hybrids and varieties.

Awards of Merit.

Rhododendron bullatum.—A beautiful, fragrant species (Farrer, 842) that flowers well in a young state. The plant shown was a small one, but it carried a terminal truss of five large broadly campanulate blooms, white with a greenish yellow basal stain. The margins of the flowers are undulate. The ovate-lanceolate leaves are deep green above, with a little cobwebby down, while underneath there is a dense ferruginous tomentum. Shown by T. H. Lowinsky, Esq.

Rhododendron Penjerrick.—The pink campanulate flowers of this variety are delicately veined with deeper pink. The blooms are roundly campanulate with recurving rim. The truss is loosely formed and the leaves are deep green above and pale green beneath. Shown by Lady Aberconway, Bodnant, North Wales.

Rhododendron Euphrosyne.—One of the handsomest of Rhododendrons, with broadly campanulate flowers of goodly size; the colour is deep pink, veined and spotted with scarlet. The comparatively small leaves are dark green with paler margins, and light green beneath. Shown by Lionel de Rothschild, Esq., Exbury, Southampton.

Rhododendron ficto-lacteum.—A bold and attractive Rhododendron with seven-lobed companulate blooms of fair size. The colour is blush white with a deep maroon stain at the base, but a little to one side, and from this blotch extend a few spots of the some rich colour. We counted twenty-two flowers in the large truss. The leaves are large, deep dark green above and rusty beneath. We do not understand the significance of the name of this fine Rhododendron. Shown by Mr. G. Reuthe, Keston.

Rhododendron Gilian.—A superb Rhododendron which appeared in a pan of seedlings raised from a cross between R. campylocarpum and R. Aucklandii. The deeply campanulate five-lobed flowers are wholly of a cardinal red or soft rosy crimson hue, which is very attractive. The individual blooms measure 3¼ inches across the mouth and are 2¾ inches long. The papery calyx is interesting, as also is the purple colouring at the bases of the pedicels. Shown by E. J. Magor, Esq., St. Tudy.

Cerasus Hukon.—A very free-flowering Cherry somewhat like the Prunus serrulata flore luteo pleno found in a few gardens. The branches bear an abundance of large blooms, usually in threes, dull white tinted with buff, which gives the flowers a slightly yellow hue that tends to dinginess.

Clematis macropetala.—One of the smaller-flowered species (Farrer, 315), with slender stems, ternate leaves and blue flowers. The latter are composed of many narrow segments, and nearly all of these point forward after the style of certain Cactus Dahlias. Shown by Messrs. Ingwerson and Jones, Stevenage.

Trillium undulatum.—A pretty and dwarf species with the usual three leaves on a stem and a surmounting triangular flower. In this species the leaves are rich green, often with a ruddy tint The flower is almost 1½ inch across, with three small green sepals and three attractive white petals, each with rosy purple lines at the base. Shown by Messrs. Waterer, Sons and Crisp.

Anemone St. Brigid, Crowley's White.—A lovely white form of a popular strain of Anemones: the blooms are semi-double, large and shapely. Shown by S. Crowley, Esq., Tipperary, Ireland.

Groups.

Rhododendrons formed a very important part of the show. It was, we believe, the occasion of the annual show of the Rhododendron Society, but as this body does not court or desire publicity no information is available. No doubt the members met later and made awards. However, non-members were permitted to view the exhibits, and although the general arrangements were decidedly poor, many of the trusses of bloom were worthy of the admiration they received. From the spectacular point of view chief place must be given to Lt.-Col. Messel (gr. Mr. J. Comber), who showed that his Rhododendrons could not only be beautiful in themselves, but with tasteful treatment could be most attractive collectively. The chief sorts so well displayed were Gill's Triumph, R. campylocarpum, R. Fosterianum, and lovely hybrids of arboreum and Aucklandii. He also showed profusely flowered sprays of Acacia verticillata (Silver-Gilt Banksian Medal).

A very interesting collection of splendid trusses was displayed by Lionel de Rothschild, Esq., from Exbury. This included a beautiful pale blue form of R. campanulatum, R. neriifolium, a compact truss of deep cardinal flowers; Rose Perfection, Euphrosyne and Griffithii (Silver-Gilt Flora Medal).

At the Gallery end of the hall Messrs. R. Gill and Son had the most imposing collection of Rhododendrons in the hall. Besides large vases of the various arboreum seedlings, they had a superb blue seedling from R. campanulatum of decidedly better form and deeper colour than any other of its type. The central vase of R. Nuttalli and another of R. Aucklandii were magnificent, and these giants were in direct contrast to the smaller, but vividly coloured tubular flowers of R. Roylei and R. Keysii (Silver-Gilt Banksian Medal).

Col. Stevenson Clarke had a number of beautiful trusses, which appeared to be chiefly hybrids and seedlings of Aucklandii and arboreum, but by the time the judges made their inspection the blooms had not been named (Silver-Gilt Banksian Medal). Lady Aberconway sent from Bodnant, Tal-y-Cafn, N. Wales, a very interesting collection of Rhododendrons. R. Loderi King George, R. Penjerrick and a lovely pink-coloured hybrid between R. Thomsoni and R. Fortunei of the larger-flowered sorts were very charming. A very representative set of the blue-flowered varieties was shown and these ranged from the goodly sized flowers of R. Augustinii through R. Benthamianum and R. hippophaeoides to the tiniest R. intricatum (Silver-Gilt Flora Medal). A delightful deep blue species, R. rupicolum, was shown by E. G. P. Magor, Esq., Lamellan, St. Tudy, Cornwall, who also staged a great variety of very rare and interesting little species. R. Augustinii, R fastigiatum and R. calostrotum are the names of only a few of these fascinating species (Silver Flora Medal).

In the annexe Sir John Ramsden, Bulstrode, Bucks, had splendid trusses largely of desirable hybrids between Rhododendrons Fortunei, Thomsonii and Aucklandii. He also showed excellent trusses of R. campylocarpum and R. Roylei. G. L. E. Loder, Esq., had a small collection, which included trusses of Rhododendron niveum and R. Baileyi, a small deep rose-coloured variety with spotted flowers. There was also a fine spray of Edwardsia tetraptera. Messrs. C. B. Van Nes and Sons showed good seedling Rhododendrons. Several were suggestive of Pink Pearl (Silver Banksian Medal). Messrs. L. R. Russell, Ltd., had beautiful plants of Rhododendron Dalhousiae, R. fragrantissima and Columnea gloriosa purpurea.

Excellent plants of hardy hybrid Rhododendrons were delightfully arranged on a large floor space by Messrs. Wallace and Co. The chief varieties were Pink Pearl, Hugo de Vries and Countess of Athlone. Messrs. Wallace and Co. also showed many interesting alpines and floriferous bushes of Daphne Cneorum (Silver Flora Medal).

Roses were well shown by several of the leading trade growers. Messrs. W. Cutbush and Sons had a large floor group of the Polyantha Roses (Silver Flora Medal). Messrs. B. R. Cant and Sons had goodly cut blooms of Padre, Colcestria, Covent Garden and Constance Casson (Bronze Flora Medal). In the collection of Roses arranged by Mr. E. Hicks there were beautiful vases of Columbia, Mrs. C. Sawday, Climbing Lady Hillingdon and the deep pink John Hart (Silver Banksian Medal).

Messrs. Paul, Ltd., had a fine corner group of pot Roses. The climbing varieties included The Beacon, a vigorous single-flowered variety which might be termed a deeper-coloured American Pillar, though the blooms were rather larger than those of that popular variety. (Silver Banksian Medal).

Carnations of great value were shown by Messrs. Allwood Bros. (Silver-Gilt Banksian Medal); Mr. C. Engelmann (Silver Banksian Medal), Messrs. Keith Luxford and Co. (Bronze Flora Medal), and Messrs. Stuart Low and Co. The last firm also arranged floriferous plants of Acacias, Gloxinias, Hippeastrums, Asclepias curassavica and Chorozema cordata (Silver Banksian Medal).

There was a pleasant variety of trees and shrubs, other than Rhododendrons, both as growing specimens and as cut sprays. Mr. R. C. Notcutt had a tastefully arranged group of such shrubs as Japanese Cherries, Pyrus Malus varieties, and Lilacs, with splendid tall standard Brooms, in great variety, rising above them (Bronze Flora Medal). Messrs. J. Cheal and Sons included good flowering examples of Cornus Nuttalli, Corokea Cotoneaster, Drimys Winteri, Ceanothus pallidus, Ulex europea fl. pl. and Cydonia Maulei, with various Pyruses. They also showed a good collection of alpines, Hydrangeas, and the earliest Dahlias (Silver Flora Medal).

In the collection displayed by Messrs. J. Piper and Sons there were various Japanese Maples, Clianthus puniceus, with excellent plants of Primula pulverulenta, Cheiranthus Allionii and Violas (Silver Banksian Medal). Messrs. Cutbush and Sons displayed well-grown little Conifers, Azaleas of several types, and alpines on a well-arranged little rock garden (Silver Banksian Medal). The shrubs exhibited by Messrs. Hillier and Sons included graceful Bamboos, Photinia serrulata, showing its ornamental purplish young foliage, the larger leaves of Azalea chinensis aurea variegata and the uncommon Cotoneaster horizontalis variegata.

The Maytham Gardens contributed many elegant plants of the fascinating Veronica Hulkeana, arranged in conjunction with dwarf early Phlox, and an excellent dark blue Verbena (Bronze Banksian Medal). Some well-flowered deciduous Magnolias, Ceanothus rigidus, and Drimys aromatica were well represented in a collection which was bordered with plants of the dwarf Rhododendron fastigiatum, displayed by Messrs. Waterer, Sons and Crisp (Bronze Flora Medal). Several Tree Paeonies were shown by Messrs. G. Bunyard and Co., who also had early Irises (Silver Banksian Medal).

Amongst the many alpines and border plants shown by the Chalk Hill Nursery Co. was a goodly collection of Mesembryanthemums, Fuchsias of many sorts, Primulas, Polyanthuses and the old favourite Gazania splendens. Messrs. Waterer, Sons and Crisp showed Iris pumila cyanea, I. Hecate in an interesting collection of alpines and border plants (Bronze Flora Medal). Mr. Wm. Yandall had a collection of very good Violas. Messrs. R. Tucker and Sons included a fine plant of Daphne arbuscula in their alpine exhibit. Mr. Clarence Elliott arranged a large quantity of Gentiana acaulis at one end of his collection (Silver Banksian Medal). Messrs. Carter Page and Co. had plants of the graceful little Androsace sarmentosa pimeloides in their alpine collection, and also showed Violas and flowers of early Dahlias (Silver Banksian Medal). Alpines were also shown by Messrs. Maxwell and Beale (Bronze Flora Medal). Messrs. B. Ladhams, Ltd., who had Cardamine lilacina plena and some pretty double-flowered Daisies (Silver Banksian Medal). Mr. W. Wells, junr., showed Gentiana acaulis, Geum montanum and many varieties of Aubrietias (Silver Banksian Medal). Messrs. K. and J. Hill had Aubrietias in large plants. Messrs. Reamsbottom and Co. staged their excellent St. Brigid Anemones (Bronze Flora Medal). Messrs. Bakers, Ltd., showed border flowers and alpines (Bronze Banksian Medals). Mr. G. Miller again staged a fine collection of his excellent Polyanthuses (Silver Flora Medal).

Messrs. Storrie and Storrie had a large collection of Cinerarias and Primula obconica (Silver Banksian Medal). A collection of splendid sprays of winter-flowering Sweet Peas was contributed by J. D. Botterill, Esq. (Silver Banksian Medal).

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the chair), Miss Willmott, Sir A. D. Hall. and Messrs. W. W. Fowler, G. W. Leak, H. Backhouse, H. E. Hawker, J. W. Jones, H. V. Warrender, W. R. Dykes, Geo. Churcher, G. Monro, W. B. Cranfield, W. Poupart, F. H. Chapman and Chas. H. Curtis, Hon. Sec.

Awards of Merit.

Narcissus Intensity.—This delightful Poet's variety has pure white perianth segments of excellent substance and a small, frilled, solid red cup of great beauty and effect. Raised and shown by Rev. G. H. Engleheart, Dinton.

Narcissus Mainsail.—This is a large-flowered poeticus variety, with a broad, rounded white perianth segments and a dull yellow, red-rimmed cup. Shown by the Rev. G. H. Engleheart.

Narcissus Roland.—A good poeticus variety with very broad, solidly white perianth segments and a flat, orange-coloured, crimson-edged cup. Shown and raised by the Rev. G. H. Engleheart.

Narcissus Opera.—This bright and upstanding poeticus variety attracted a great deal of attention. The broad cup is orange-yellow with a wide red rim, and this is admirably set off by the pure white perianth segments. Shown by W. B. Cranfield, Esq.

Groups.

A collection of Darwin Tulips arranged
Messrs. Barr and Sons included such
Erguste, Sweet Lavender, Valentine and Ang
lina, of uncommon lavender shades. They al
showed many Narcissi of uncommon m
(Silver-Gilt Flora Medal).

A great display of Tulips was made by Mess
R. H. Bath Ltd., who had Le Grandeur, Artu
Couleur Cardinal and Chamoise Royal (scarle
and reds), Ibis and Fibiola (pinks), King
the yellows, De Wet and Thos. Moore (orang
(Silver Flora Medal).

Messrs. Sutton and Sons had a good c
lection of tastefully arranged Narcissus, whi
included Nannie Nunn, Hero, Queen of t
North and Golden Sceptre (Silver Banksi
Medal). Mr. W. B. Cranfield showed a c
lection of the elegant variety Venetia (Silv
Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (in the chair),
Harrison, Geo. F. Tinley, S. B. Dicks, W.
Giles, P. D. Tuckett, Ed. Beckett, A. Bullo
A. C. Smith, W. Bates, W. H. Divers,
Markham, F. Jordan, E. A. Bunyard, G. R
nolds, A. Metcalfe and A. N. Rawes.

A few varieties of Rhubarb were exhibi
from the Society's gardens at Wisley, and
exhibitor sent sticks of Appleton Red varie
which was stated to be a good market s
This was recommended for trial in the Wi
Gardens, and the Committee considered that
general trial of varieties to test their me
for forcing and open-air culture would be
value, as well as for deciding the correct a
spurious names.

ANSWERS TO CORRESPONDENTS.

Begonia Gloire de Lorraine: *Anxious O*
The trouble with your Gloire de Lorrai
Begonias is due to mite, and not rust as y
suggest. This pest should be kept in che
by fumigating the house on frequent occasio
during the early stages of growth. Pla
infested with this pest will fail to grow a
gradually die. One of the principal deta
in the successful cultivation of this Begor
is to obtain good basal cuttings from clea
healthy stock; therefore it would not
advisable to propagate from your old plan
Should the plants be attacked by rust o
frequent sprayings with weak soot-water w
check the spread of the disease, or the leav
may be dusted occasionally on the und
sides with flowers of sulphur. A suitable co
post for these Begonias consists of three pa
turfy loam, the remainder leaf mould a
manure from a spent mushroom bed, t
manure to be passed through a fine siev
and a 3-inch potful of bone meal added
each bushel of soil, with sufficient sand a
broken charcoal to render the whole porou
A little peat may be added in the plant
early stages of growth. A minimum nig
temperature of 60° should be maintaine
with a rise of 15° at the time of closing t
house. Shade the plants from bright s
shine and fumigate them weekly or spray the
with XL-All insecticide.

Horticultural Journals: *E. K.* Both t
Gardeners' Magazine and the *Journal*
Horticulture have been discontinued.
Garden is published weekly at 20, Tavisto
Street, Covent Garden, W.C.2.

Name of Plant: *T. A. S.* Probably Pyr
arbutifolia, but specimen too scrappy f
correct determination.—*H. B. O.* Spira
arguta.

Potatos Diseased: *R. T. C.* The tubers a
affected with a "soft rot" disease caused b
a bacterium. An excellent account of thes
bacterial rots and how to prevent them
given in the supplement to the *Journal*
the Ministry of Agriculture, on Potato Cu
tivation and Diseases, price 6d.

Communications Received.—Gardener, He
F. B.—M. T.—P. E. C.—A. N.—W. J. H.—S. L.
—R. W. R.—A. N.—Leicester—E. B.—P. G. B.
W. D.

THE
Gardeners' Chronicle
No. 1897.—SATURDAY, MAY 5, 1923.

CONTENTS.

erdeen University and the teaching of forestry 240
ricultural research .. 239
pine garden, the—
Scilla Lilio-hyacinthus 245
The White Garland flower 245
oks, notices of—
The Primulas of Europe 241
ltural memoranda—
Holly hedges .. 248
Gardeners' Chronicle" seventy-five years ago 241
rdens, economy in private 249
tional Tulip Society 239
rth of England Pansy and Viola Society .. 240
k timber eight and a half centuries old .. 248
ituary—
M'Hattie, John W. 252
chid notes and gleanings—
Odontioda Deltilia .. 247
Stelis tristyla .. 247
lm Garden at Leipzig 239
lms of the Riviera .. 248
ris autumn show .. 239
as 249
ppies for Memorial Day in America .. 240
Primula sinensis and P. calciphila 239
Propagation by cuttings in acidic media .. 244
Purslane, winter .. 249
Scotland, proposed fruit testing station in .. 240
Silver leaf 249
Societies—
Dutch Bulb Growers 252
Falmouth Spring Show 251
Manchester and N. of England Orchid .. 251
Midland Daffodil .. 250
National Rose .. 250
Reading and District Gardeners' 251
Soil acidity 247
Stadium, the playing pitch at the Empire 240
Trees and shrubs—
Some dwarf Hypericums 243
Vegetable garden—
Tropaeolum tuberosum 248
Ward's, Mr. Kingdon, seventh expedition in Asia 246
Week's work the .. 242
Whitton, Mr. James, retirement of 239
Wilks, the late Rev. W. 239

ILLUSTRATIONS.

ttings in acidic media, propagation by .. 244, 245
Hattie, Mr. J. W., portrait of the late 252
imula calciphila on the limestone cliffs in the Ichang gorge 241
ododendron bullatum 243
se Deception 247
illium undulatum 249

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erage Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 49.7°.

tual Temperature:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 2, 10 a.m.: Bar. 30.3, temp. 64°. Weather—Sunny.

Primula sinensis and P. calciphila. The so-called wild Chinese Primrose (Primula sinensis) introduced into cultivation both by Henry and by Wilson, has long proved a puzzle to those who grow it. resenting a passable resemblance to the ltivated forms of the species, it proclaimed s peculiarity by refusing to cross with any f the varieties in cultivation. For a long me those who attempted to make the cross xercised the philosophic patience which the ractice of their art begets in them, and ied again; always, however, without avail. nasmuch as no other wild Primula is known hich can claim to be P. sinensis, those who ccepted the view that Henry's and Wilson's ild Chinese Primula was that species asumed tacitly that the manifest differences etween it and the cultivated varieties so ommonly and widely grown are the results f cultivation. Wilson, in an article on the ome of the Chinese Primula (*Gardeners' hronicle*, Series III, vol. 36, p. 382, 1905.) omments on the fact that the florists' hinese Primula in colour, size, shape and ubstance has diverged widely from the type -that is, from the plant, which he describes s the wild species. The characteristics of the harming plant introduced by Henry and Vilson are, and deserve to be, well known. he plant—figured recently in this journal *Gardeners' Chronicle*, Feb. 24, 1923)—eceived the R.H.S. Award of Merit on ebruary 13 of this year. This Primula is very floriferous, producing soft lilac to rosy-lilac flowers, and is well worthy of greenhouse cultivation. A careful comparison of the so-called wild Chinese Primula with the cultivated P. sinensis has recently been made by Mr. J. Hutchinson (*Bulletin of Miscellaneous Information.* Royal Botanic Gardens, Kew, No. 3, 1923), with the result that its claims to represent the wild form of P. sinensis must be dismissed and it must be given the status of a distinct species. On account of its habitat on limestone cliffs, it has been named P. calciphila. Apparently the species is of very local distribution. According to Wilson (*loc. cit.*) it is confined almost entirely to the fifteen miles of the Ichang Gorge, where the inhospitable limestone cliffs (see Fig. 110) are covered in January, February and early March with thousands of plants—one mass of delicate mauve-pink flowers, the fragrance of which is delicious. P. calciphila possesses many of the qualities of a first-rate greenhouse plant. Its flowers are of delicate tone, last a very long time and are borne in graceful and numerous clusters rising well above the foliage. The most striking differences between it and the florists' P. sinensis are summarised by Mr. Hutchinson in the article cited. The petioles of P. calciphila become dry and perish, whereas those of the florists' Chinese Primula are fleshy and decay with age. The former has a five-lobed calyx and unlobed or more or less bi-lobed corolla. In the latter the calyx is much inflated, often irregularly ten-toothed, and the corolla varies from that of bilobed stellata type to the much cut form of the sinensis type. Cumulatively, all these small differences would appear to indicate decisively that the two plants are specifically distinct. The mystery of the origin of the florists' Chinese Primula therefore remains unsolved. This plant came to us a century ago. Captain Rawes, who sent living specimens to this country in 1820, obtained them from the gardens at Canton, but what is the wild origin of these plants, which have been doubtless long cultivated by the Chinese, it is still impossible to state. It is difficult to believe that the almost infinite variety displayed by the florists' Chinese Primula since its introduction is due to change of habitat or to cultivation. More probably the plant, long cultivated in Chinese gardens, had already produced there—perhaps by hybridisation—various forms, and several of these varietal forms came in the batch sent by Captain Rawes to his friend, Thomas Palmer, of Bromley, Kent.

Special Grants for Agricultural Research.—The Ministry of Agriculture is ready to receive, up to May 15, applications for grants to assist agricultural research workers in carrying out definite pieces of research work. The sum of £4,000 per annum is available from which grants can be made, and applications will be considered by a Committee set up by the Development Commissioners, under the chairmanship of Sir Daniel Hall, K.C.B., Chief Scientific Adviser to the Ministry. Investigations in respect of which applications are made should be intended to be carried out in England and Wales during the year commencing October 1, 1923. The conditions of grants, which applicants should know before making application, may be obtained from the Ministry of Agriculture, 10, Whitehall Place, London.

National Tulip Society.—The annual meeting of the National Tulip Society will be held under the auspices of the Royal Horticultural Society in the Horticultural Hall, Vincent Square, Westminster, in connection with the R.H.S. fortnightly show on May 8 and 9. The schedule of prizes is the same as last year for Darwin, May-flowering, and Cottage Tulips. Exhibits of Tulip species are invited, and the usual show of florist's Tulips will be held. Particulars may be obtained from the Honorary Secretary, Mr. W. Peters, 6, Union Road, Cambridge.

The Palm Garden in Leipzig.—It is stated in our contemporary, *Die Gartenwelt*, that it is proposed by the town authorities of Leipzig to clear the well-known Palm Garden of the Palm houses and make the grounds into a public park. The journal goes on to deplore this intention, as the Palm Garden has long been a source of interest and instruction to gardeners from all parts of Germany, and to express the hope that if economy is desired, some other way of saving money may be found.

The Late Rev. W. Wilks.—The Royal Horticultural Society has been left the ultimate residue of the estate of the Rev. W. Wilks, which is valued at £28,046, with net personalty £25,180. Mr. Wilks bequeathed £100 to his companion, Mr. Frank M. Rendell, and £800 a year until he marries, and while he resides at the Wilderness, or an annuity of £500 should he reside elsewhere. The residue of the estate is left in trust for certain of the children of his sister, Mrs. Lepard, and, on the death of the survivor, to the Royal Horticultural Society, with the hope that "they will permit the secretary or treasurer to use the Wilderness as his official residence."

Retirement of Mr. Whitton.—Mr. James Whitton, Director of the Parks and Open Spaces of Glasgow, has placed his resignation in the hands of the Parks Committee, with an expression of willingness to serve the department in a consultative capacity. During Mr. Whitton's thirty years of office the public parks and open spaces of the city have greatly increased in numbers, until at the present time they include thirty-one public parks, having an area of 1,536 acres, in addition to the city's Highland estate of Ardgoil; numerous open spaces, playing grounds, including bowling greens, tennis courts, golf courses, etc. He was also responsible for the provision of musical entertainments in the parks under his charge. Mr. Whitton, who is seventy years of age, was born in a garden, when his father was gardener at Methven Castle, Perthshire.

Paris Autumn Show.—The autumn exhibition of the French National Horticultural Society will be held this year from the 26th October to the 4th November, on the Cours la Reine, Paris. There will be classes for Chrysanthemums, flowering plants, Orchids, fruits, trees and shrubs, vegetables, etc., as well as for works of art connected with horticulture, and for horticultural industries. A number of medals and prizes will be awarded, as well as a special prize offered by the Comptoir Parisien d'Engrais, of the value of Fs. 500, for a group of six Chrysanthemums of one variety. Full particulars may be obtained from the Secretary, Société Nationale d'Horticulture Française, 84, Rue de Grenelle, Paris.

Fruit Structure and Germination of Mare's-tail.—Having found the figures and descriptions of the fruit of the Mare's-tail (Hippuris vulgaris), a well-known British plant, to be unsatisfactory, Dr. Rendle demontrated the structure of the fruit on the occasion of the April meeting of the Linnean Society. He stated that the textbooks or floras overlooked points of detail in structure associated with the germination of the seed. The fruit is a drupe, the upper portion of which around the persistent base of the style, with the seed-coat, is developed in the form of a stopper which is easily withdrawn on soaking the ripe fruit. The embryo ultimately fills the seed, and has the large radicle and hypocotyl so often found in water plants. The speaker had been unable to get fruits of herbarium specimens several years old to germinate, and suggested that Fellows interested in British botany might look out for seedlings during the next season. The radicle was placed directly beneath the stopper, which provided a place of exit on germination.

Destruction of Weeds by Spraying.—The Ministry of Agriculture's leaflet No. 63 deals with the destruction of Charlock, for which sulphate of copper is recommended. For certain other weeds, especially Corn Buttercup (Ranunculus arvensis—known also as Corn Crowfoot, Starveacre, Watch-wheels and by many other local names) spraying with a solution of sulphate of ammonia has been found useful in destroying or checking their growth. The best time to spray Corn Crowfoot is when it is just coming into flower, and the solution of sulphate of ammonia should be 1½ to 2 cwt. in 50 to 60 gallons of water, which should be applied at the rate of about 50 gallons per acre. Other weeds, such as Ivy Leaved Speedwell, Sheep's Sorrell, Charlock, and Wild White Mustard, have also been effectively checked by sulphate of ammonia sprays.

The Playing Pitch at the Empire Stadium.—It might have been expected that the Football Ground at the Empire Stadium, Wembley Park, would have been ruined by the happenings of last Saturday, when it was over-run by the vast crowd, and mounted police had to be requisitioned to clear the pitch to enable the Cup Tie Final to be played. But we are glad to learn that, considering all things, the damage to the turf was comparatively slight, and was quickly remedied by the staff. As our readers are aware, the turf was laid only last autumn, but when we saw it quite recently it was in splendid condition. The turf was prepared in the grounds by Mr. A. C. Bartlett, of Kew, who is in charge of the horticultural operations at Wembley Park, including the Football Arena, and he treated it with the view to its withstanding hard wear. Its present state shows how well he succeeded. Although a large percentage of the enormous attendance overflowed into the grounds, it says much for their good behaviour that not the slightest damage was done to the many recently planted trees.

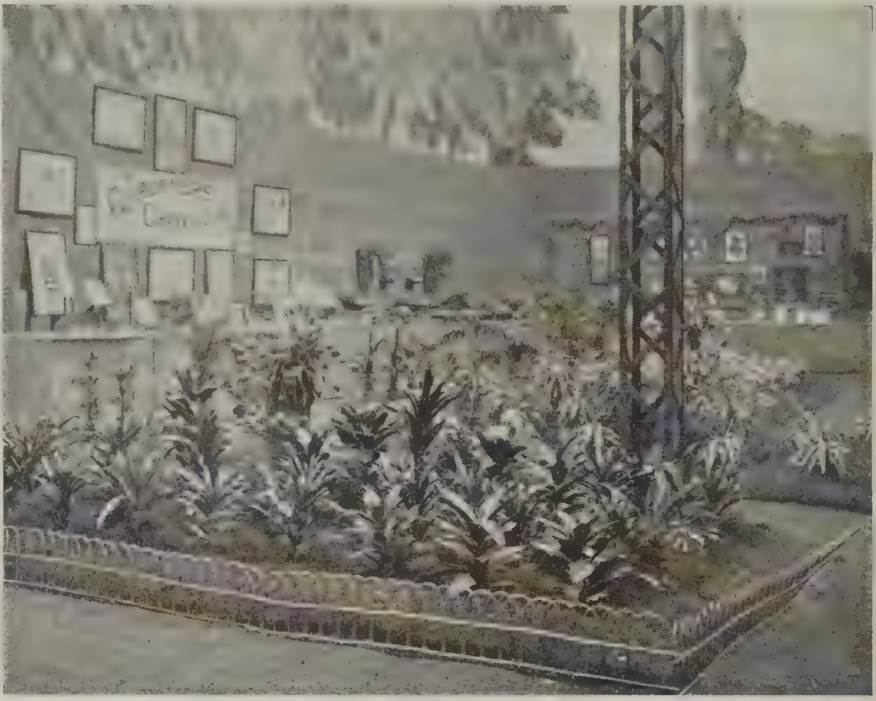

FIG. 109.—GHENT SHOW: MESSRS. CRAGG, HARRISON & CRAGG'S CROTONS IN THE FOREGROUND, AND "THE GARDENER'S CHRONICLE" AND MISS WALKER'S EXHIBITS BEYOND.

Coloured Forms of Lily-of-the-Valley.—In a letter thanking us for our reference to the wonderful Ranunculus and coloured forms of Lily-of-the-Valley he exhibited at the Ghent International Exhibition, Dr. Attilio Ragionieri (Florence) states that his coloured varieties of Lily-of-the-Valley are the result of a very long series of crosses, and that although he has already selected eighty more or less distinct forms, he still has many hundreds of seedlings to select from. Some of his varieties come into flower very early, while others are very late; some are very dwarf, while others have spikes more than a foot high. The size and shape of the spikes and bells also show considerable variation, and in some forms there is a circular disposition of the bells on the spike. The colour range is from the purest white to flesh-tinted pale rose, rosy-lilac, and clear violet. Dr. Ragionieri stated that the soil in his garden is not at all suitable for the cultivation of Lily-of-the-Valley, and he expresses the belief that if his collection could be grown in a more suitable soil and climate it would command a great deal of attention.

Poppies for Memorial Day in America.—The Council of the United States Chamber of Commerce has issued an appeal asking Americans everywhere to wear scarlet Poppies on May 30 "in honour of the men who fell in France." The idea originated with the American Legion, which chose the scarlet Poppy because it blossoms in the fields of Flanders, where so many of their comrades fell and died in the great war. All members of local Chambers of Commerce throughout the United States are being urged to further this movement.

Britain's Part in the Floralies Gantoises.—As everyone knows, the Ghent "Floralies" take place every five years; but, owing to the war, the exhibition of 1918 could not be held. The war almost destroyed the Ghent horticultural industry; but, thanks to the indefatigable efforts of the Belgian cultivators, it is now fast regaining its pre-war standard. The *Indépendance Belge* gives the following vivid picture of the British section at the Floralies:—"This section is superb and forms one of the most admirable parts of the Fair. Organised under the auspices of the English Chamber of Horticulture, the Royal Horticultural Society of Great Britain, the British Florists' Federation, and the Horticultural Trades' Association, this section comprises the flowers sent by about thirty exhibitors, some of whom, notably the Spalding Bulb Growers' Association of Lincolnshire, represent in their turn a large number of horticulturists. The bordered flower-beds and the cut flowers in green vases and artistic baskets of fine gilded osier, combine to give an impression of harmonious and refined elegance. The English section is especially distinguished by its magnificent Carnations, the pride of horticulturists in the London area, and which have won for Mr. Engelmann (to mention only one of the most important exhibitors) many prizes and medals. Second only to the Carnations in importance are the Jonquils and Narcissi, exquisitely fresh, about 30,000 in number, sent by the Spalding Bulb Growers' Association. We must not omit to mention, among the other plants and flowers exhibited, the enormous Daffodils, the majestic yellow Arum Lilies, three thousand Roses, two thousand Tulips, Hydrangeas, Anemones, etc. At the end of the British section are the Alpine gardens, with their rockeries, their Pine-trees, and their modest flowering plants; Broom, Heather, and other wild flowers. A stall of delicious fruits from England, South Africa and New Zealand, the stand of the venerable horticultural journal, *The Gardeners' Chronicle*, and the charming pictures by Miss Winifred Walker, Member of the Royal Academy, complete the British section, and all the visitors to 'the Floralies' are unanimous in agreeing that it has achieved a notable success." The illustration this latter section (Fig. 109) shows our exhi but, unfortunately, the photograph was ta when the Palms had been taken down to watered in the early morning.

The National Fruit and Cider Institute.—T Annual Tasting Day at the National F and Cider Institute, Long Ashton, Bristol, been fixed for Thursday, the 10th inst., 12 o'clock noon, and onwards.

North of England Pansy and Viola Society The eighth annual exhibition of this Soci will be held in conjunction with the Salta Rose Society's show at Roberts Park, Saltai on July 10 and 11. Shows will also be h under the auspices of the North of Engl Pansy and Viola Society at Rivelin, Sheffi on Saturday, July 21; at Nelson, in c junction with the Nelson Small Hold Society on August 11; and at Colne August 18, in connection with the Colne Ho cultural Society's show. The Society's Jour gives the florists' standard for exhibit Pansies and Violas, and there are interest articles on Fancy Pans and their Colours, Mr. Hamish McCunn; Origin of the Pansy, by S. Arnott; and Hints Staging at Exhibitions, Mr. W. H. C. To Desmond.

Local Horticultural So ties. — Oxted Garden Society finished the y 1922 with a small bala of 2s. 10d. in hand, and view of this small bala a suggestion was made the annual meeting t the exhibition should discontinued. Several p sent, however, offered c tributions to the p fund, and the feeling the meeting was that show should be contin it was stated that one the reasons of the sn balance was that in pr ous years the Society no expenses to meet tents. The chairman, J. F. W. Wheeler, sta that the Society had ha successful career, and d ing the war had been a to devote considerable s from the proceeds of shows to charitable p poses, and he felt confid that in the future t would repeat their g work of the past. stated that Mr. Collyer Hamlin h generously offered his auction mart for purpose of holding the show this year.

Proposed Fruit-testing Station in Scotlan A movement is on foot to establish a fruit-test station in Scotland, somewhat on the lines the one recently established by the Royal Ho cultural Society at Wisley in conjunction w the Ministry of Agriculture. In a letter to *Glasgow Herald*, Mr. Wm. Cuthbertson presses his belief that the Board of Agricult for Scotland would probably lend financial ai such a scheme provided fruit growers nurserymen gave a moderate amount of finan support.

Aberdeen University and the Teaching Forestry.—Intimation was made at a spe meeting of the Aberdeen University Court, o which Sir Robert Horne, the Lord Rector, ex-Chancellor of the Exchequer, presided, t the Forestry Commission had forwarded to University a grant of £200 for research w In making the intimation, the Principal, George Adam Smith, also informed the Co that the Forestry Commission wished that teaching of forestry, which had hitherto be done by the Aberdeen and North of Scotl College of Agriculture, while the Univers

nted the degrees, should be taken wholly in
ıd by the University. A committee of the
ırt had been appointed to confer with the
lege of Agriculture, and the Principal sug-
ted that they should await a report by that
ımittee, before making any plans with re-
d to the grant which they had received.
e grant of £200 for research is in addition
the £600 a year which the Forestry Com-
sion grants. It must not be inferred from
s that the teaching of forestry has not been
ried out by the College of Agriculture to
satisfaction of the Forestry Commission.
e fact is the reasons for the proposed trans-
are purely of a financial nature. Hitherto
main part of the cost of the Forestry
partment at Aberdeen has been met by grants
m the Forestry Commission, but owing to the
tailments enforced by the Treasury, the
ıual grant made by the Forestry Commission
now been reduced so much as to involve
onsiderable annual deficit. The governors of
College had last year to meet that deficit
of College funds provided for capital ex-
ıditure. They cannot, however, continue to
ke such payments, and it is only with the
w of provision being made for any deficit
m University funds that the governors of
College have to consider the transfer of the
partment to the University. In the course
the discussion, Sir Robert Horne said he had
n in close touch with the Forestry Com-
ssion while he was Chancellor of the
chequer. The Commission was well
naged, and any help which the University
ıld give it by good, sound teaching would
welcome.

Appointments for the Ensuing Week.—
esday, May 8: Royal Horticultural Society's
mmittees meet (2 days), Horticultural Club
nner and Lecture at the Connaught Rooms;
tional Tulip Society's show (2 days); Jersey
rdeners' Society's meeting. Wednesday,
ay 9: East Anglian Horticultural Society's
eting; Sheffield Chrysanthemum Society's
eting. Saturday, May 12: Wakefield and
rth of England Tulip Society's show.

"Gardeners' Chronicle" Seventy-five Years
go.—*A new method of planting Fruit trees.*
e following method of planting fruit trees
omises to confer great advantage upon their
ltivators, and with this conviction it is offered
the consideration of your readers. The
ethod is as follows: Plant a young fruit tree
a full sized pot; then dig a deep pit in the
ace selected for the tree, sufficient to allow
an inverted Sea-kale pot being placed in
e bottom, and upon it the pot containing the
uit tree. The pit must be of a sufficient
pth to bring the edge of the upper pot from
x to eight inches below the surface of the soil.
he advantages of this plan are—1, perfect
rainage; 2, prevention of too rapid extension
roots, especially the tap root; 3, promotion
the growth of fibrous roots growing near the
ırface of the soil; 4, diminution of pruning,
ways "a violent remedy though necessary in
me degree"; 5, the earlier formation and
aturation of woody fibres, and consequently
rly production of fruit; 6, easy dressing. It
proper to state that several fruit trees,
iefly Pears, have been planted according to
is plan, and others at the same time accord-
g to the plan most commonly followed, and
e difference now between the two sets of
ees is such as to strike the eye of the most
reless observer. The former are now bearing
ealthy, well-matured spurs, replete with
lossom-buds, while the latter have long lanky
oots, and very few blossom-buds. *E. R. W.*
nd R. W. F., April 18. *Gard. Chron., April*
, 1848.

Publications Received.—*British Plant Names*
nd their Derivations. By R. J. Harvey-
ibson. A. and E. Black, Ltd., 4, Soho
quare, W.1. Price 2s. 6d. net.—*The Pears of*
ew York. By U. P. Hedrick. New York
griculture Experiment Station, Geneva, N.Y.
-*Jottings from a Gardener's Notebook.* By
W. Miles. Letchworth Printers, Ltd., Nor-
n Way, Letchworth, Hertfordshire. Price
s. 6d. net.

NOTICES OF BOOKS.

The Primulas of Europe.

Dr. Macwatt is well known as a very successful cultivator of Primulas, and this book on European Primulas* will be welcomed by all lovers of a beautiful family of plants.

True, it treats only of those Primulas which are natives of Europe—and their numerous garden hybrids and varieties—but this limitation has enabled the author to do his work with great fulness. The chapters dealing with questions of cultivation are particularly useful and interesting, as also are those on ancient Primula lore—the history of the evolution of the garden Auricula, and questions relating to the raising of double Primroses and Polyanthuses. We wish that he had given the names of those double Polyanthuses which yield pollen; a piece of information which would be invaluable to would-be hybridists.

The very full descriptions of the numerous natural hybrids of Alpine Primulas will probably appeal more to collectors in and visitors to the Alps than to the average rock gardener. The late Reginald Farrer wrote glowingly of many of these, but what dreadful names most of them have! And Mr. Bowles, too, tells in his fascinating book, *My Garden in Spring,* of their enormous charm as he found them in the Alps. Yet lovely and brilliant though they doubtless are in the wild state, and of some of the species the same may be said, there seems to be a cultural "but" about them in the rock garden. In spite of the tremendous keenness of modern rock gardeners and all the knowledge and skill of the best cultivators, they seem to make little headway in the garden. There is the vaunted Primula spectabilis, but of the specially brilliant forms that have been brought to this country, who has ever seen them in an English garden looking anything but a ghost's shadow of their own word portraits? And the same may be said of P. glaucescens, P. Wulfeniana, P. Clusiana, and a dozen others. Primula marginata, P. hirsuta, and P. Auricula, on the other hand are readily domesticated. P. Auricula will flourish in London gardens, and may even be seen cohabiting in parlour windows with the Aspidistra!

Two good P. marginata hybrids are figured and described in the book—P. marven and P. marginata Linda Pope; both are rare plants of great beauty and distinction, but the rarest and most beautiful marginata hybrid of all, P. Lemoinei, is unfortunately not mentioned. This has the richly scalloped, white-edged leaves of Linda Pope, but the larger flowers are of a bland Lavender blue.

We regret that in spite of the author's generous tribute to the photographer, whose pictures illustrate *The Primulas of Europe*, and the care and time which must have been expended on them, we cannot say that they are wholly good. Primula Auricula var. albo-cincta, whose flowers are clear golden yellow, look, in the illustration, of some dark heavy tone, a fault no doubt of the photographic plate used, rather than of the photographer; and P. Allionii, a species which strongly insists on growing on stark bare rock, is shown here muffled up in a carpet of moss. It is to be hoped that in future editions the eight illustrations in depressing colour will be omitted.

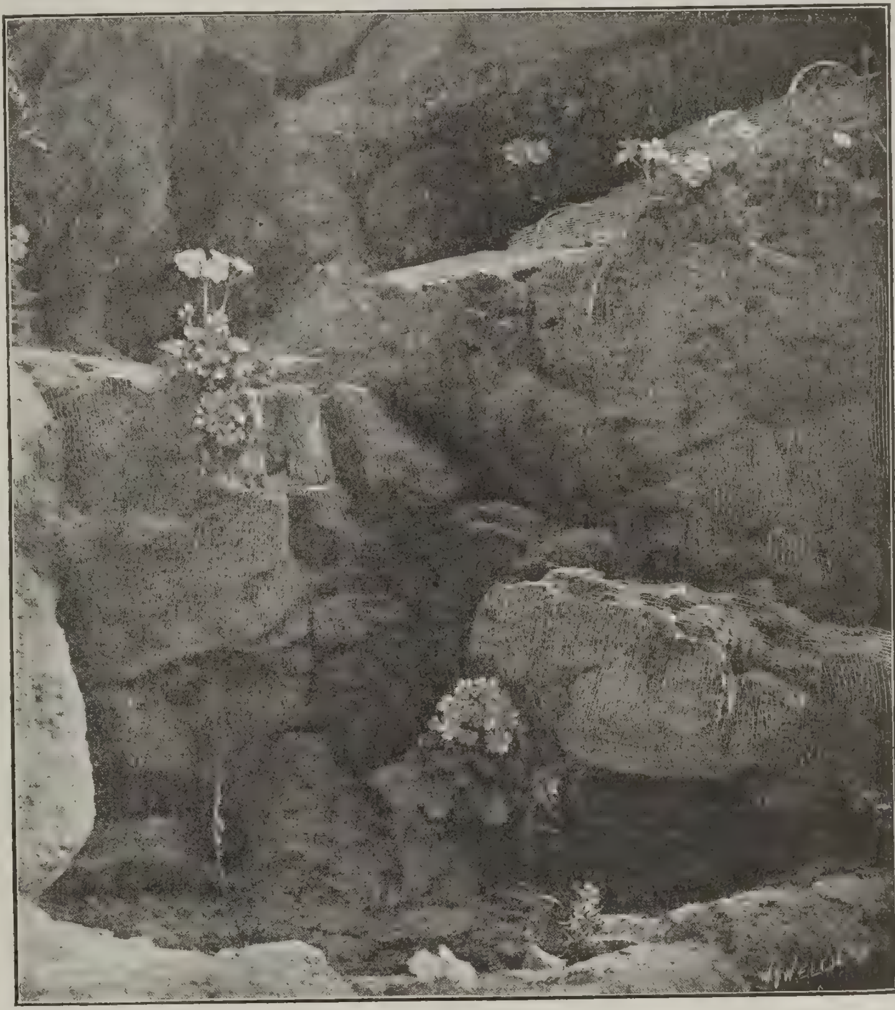

FIG. 110.—PRIMULA CALCIPHILA AT HOME ON THE LIMESTONE CLIFFS IN THE ICHANG GORGE. (SEE PAGE 239.)

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* *The Primulas of Europe.* By Dr. John MacWatt. Country Life, Ltd., 20, Tavistock Street, W.C.2. Price **12s. 6d. net.**

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Hybrid Odontoglossums.—Many collections include home-raised hybrids, and those that have passed the winter in small pots, and are well rooted, will be helped considerably if they are carefully taken out of their receptacles and given fresh material. Those that have made good progress, and are growing freely, may be shifted into larger pots, whilst in some cases the smaller ones may, with advantage, be placed in the same sized pots. Over-potting should be strictly guarded against, for more harm than good will accrue by placing plants in over large pots. It is of great importance that seedling Orchids should, so far as possible, be kept growing actively. Similar compost to that advised for Odontoglossums on p. 226 is suitable for these small plants, but it should be cut into smaller portions, according to the size of the plants.

Plants in Flower.—Where a comprehensive collection of Odontoglossums is grown, the house will be gay for some time to come, but there is always the danger of many of the plants suffering during the flowering season by allowing the spikes to remain too long on the plants. It is not the large-bulbed and thoroughly well-rooted plants that suffer, but generally the best and scarcest varieties, which generally have a weak constitution. Other species of Odontoglossums to which the above remarks apply as regards re-potting, as well as the hybrid Odontiodas, may all be attended to, provided the new growths are in the desired condition. All newly potted plants should be carefully shaded from the sun until they become re-established, and when the new roots have entered the fresh material, they should then be treated in the ordinary manner. Light sprayings overhead and between the pots will be of great assistance to them at this stage.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Tulipa sylvestris.—A small colony of this plant in flower in these gardens merits a passing reference. It is a native of this country, and useful for providing a patch of colour in open woodlands and the fringes of woodland pathways. The soil should be light, and the surface only sparsely covered with moss or grass. The flowers are fragrant. Interest attaches to this plant as regards its method of propagation, inasmuch as the new bulb is produced at the end of a fibre some distance from the parent plant—not joined to the latter as in the cultivated types of Tulips.

Bamboos.—May is the best month in which to attend to the needs of this highly decorative evergreen family of plants. Trim off neatly all marred foliage, cut to the ground dead and dying canes, weed and fork the surface of the bed, then apply a mulch of old manure to the roots. If fresh specimens are to be planted, see that the ground is deeply and richly prepared. Semi-shade suits this woody tribe of grasses better than full sunshine, while the foliage demands some screening from the coldest winds. Existing clumps of Bamboos that have grown too large may be divided now if desired.

Miscellaneous Work. — Grass mowing will occupy much time in most gardens. Except for croquet lawns, and, in a lesser degree, tennis lawns, close mowing should not be practised, because it makes the sward susceptible to "browning," and less able to withstand drought. Almost a necessary corollary of mowing is cutting the grass verges of walks and beds—work that also takes up much time, but repays for doing where tidiness is essential. To keep weeds in check and promote a good surface tilth of soil, the hoe should be employed on the borders from time to time as opportunity offers. Dahlia roots that have not been introduced to heat will be found to be breaking into growth, where they lie in store, and should be planted in their flowering places without further artificial aid. Tubers used for providing cuttings have more tender growth, and must not be planted yet awhile unprotected from frosts. The same applies to rooted cuttings recently potted. In all but the coldest of gardens plants in tubs, such as Agapanthus and Hydrangea, that have been wintered in cold houses may be placed in their summer positions, possible frosts being of little detriment to these plants now. Strive not to get in arrears with the pricking out of annuals requiring such treatment, and duly harden the plants as their progress in growth warrants.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Early Peach-house.—In houses containing established trees of early varieties of Peaches and Nectarines, the fruits will be in an advanced stage, and all of them should be as fully exposed to sunlight as possible. The adjusting of the fruits in position by means of wooden slips needs to be done carefully, or the fruits will be disfigured by undue pressure or by partially resting on the edge of the slip of wood; the latter should be quite 2 inches wide. To obtain large size, perfect finish, and high flavour in Peaches and Nectarines, liberal ventilation must be afforded the trees in their later stages of growth, leaving the house open until late in the afternoon on warm, sunny days; if the weather is mild, the ventilators may be opened a little at night. Less moisture in the air is needed, but there should be no lack of moisture at the roots; borders which are damped frequently on the surface may be dry a few inches down, and it is therefore necessary to test the conditions frequently. Give some form of manurial stimulant when watering the border, choosing one which is quick in its action. It is not advisable to use liquid manure from the farmyard when the fruits are ripening, as it would be liable to taint the fruits. Thoroughly cleanse the trees of insect pests before the final stage of ripening is reached. When the fruits are ready for gathering, the trees should be examined daily, and all fruits which part readily at the stalk should be gathered and stood in a cool room for a few days. To prevent bruising them the fruits should be handled very carefully. Fruits intended to be packed for transit should be gathered when quite firm.

Successional Peach-houses.—The trees in the second Peach-house should be examined, and any badly placed or weakly growths removed. Do not allow the young growths to extend unduly before tying them in position. When the fruits are passing through the stoning stage undue forcing is harmful. The amount of atmospheric moisture should be governed by the weather; in dull, cold weather syringing should be discontinued, as a saturated atmosphere during such time favours the development of weak growth and thin, flimsy foliage. When it is sunny and mild, plenty of air is required, closing the house sufficiently early in the afternoon to render artificial heat unnecessary until late in the evening. Trees carrying full crops of fruits should be afforded stimulants each time the borders are watered. Those in later houses will need attention in the removal of unnecessary growths. Trees with a large crop should have the fruits thinned to two or three of the best-placed specimens on each shoot; a further reduction of the number may be made when it can be seen which are likely to make the best specimens. Air should be admitted freely whenever the weather conditions are favourable, and as little fire-heat used as possible. Syringe the trees thoroughly once daily; but not in dull, cold weather, and damp the borders, etc., whenever the days are warm and sunny.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq Carlton Park, Market Harborough, Leicestershire.

Beetroot.—Seeds of globe Beet may now sown on a warm border to furnish a successio to those grown in frames. Draw the dril about 1 foot apart, and sow the seeds thinl afterwards thinning the seedlings to 1 foot apar and drawing a little soil up to them with th hoe to keep them steady in the ground. Th main crop of Beets can be sown at the sam time on an open piece of ground, at the sam distance apart as advised for the globe varieties. The soil for Beets should be deep an light, and not recently manured, otherwise th roots will fork and be useless and coarse. extra good specimens are desired, bore hole with a crowbar, and fill them with fine so from the potting shed. Sow three or four seed at each station, and cover them with soil. Whe the young plants are large enough to handle thin them to one at each place.

Cabbages.—Cabbages raised from seeds sown i February and pricked out into cold frame should be ready for planting out on wel manured, open ground. Small growing varietie may be allowed a foot between the rows, an each plant, and the larger ones 15 or 18 inche The ground should be lightly forked over a fe days previous to planting, and brought down t a fine surface. Plant each Cabbage by mean of a trowel, and make it very firm in the groun Dust soot around the plants occasionally durin showery weather; a little nitrate of soda we hoed in the soil will also be of benefit to th plants. Successional batches may be planted t maintain a supply of fresh, young heads.

Spinach and Turnips.—Make small sowings o Spinach about once a fortnight to maintain constant supply. The Spinach may be grow between rows of Peas or Beans, or anywher where it will obtain partial shade. Thin th seedlings to 1 foot apart, dust them with soo and wood ash, and keep the ground stirred wit the hoe to promote a quick growth. The sam remarks apply to Turnips, as regards sowin and position. Small sowings of this vegetabl are much better than one or two large ones. the Turnip fly appears, syringe the seedling with Quassia extract, diluted in soft water, an mulch the plants with short grass from the lawn

Asparagus.—The Asparagus beds are in fu bearing, and all stems that are large enough fo use should be cut each day. Young plant raised from seeds should be thinned out an given every encouragement to grow by keepin them clear of weeds.

Hoeing.—Take every opportunity to keep th soil about all growing crops well hoed, not onl to keep down weeds, but to encourage health growth, and prevent the ground from crackin during dry weather.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botan Gardens, Kew.

Clerodendron fragans fl. pl.—This double flowered Clerodendron is worth growing for it very fragrant blooms, and is easily propagate by means of cuttings made from the youn shoots, also by means of root cuttings. Thi plant grows freely in an intermediate temperature, and when in flower may be placed i the greenhouse.

Humea elegans.—The greenhouse Humea i generally regarded as a difficult plant to gro successfully, but if afforded perfectly cool treatment it presents no difficulty in its younge stages. However, when the plants are transferred to their flowering pots, they need extrem care, for an overdose of water may ruin them Plants raised from seeds sown last August shoul now be in their flower pots; if they have bee well grown, receptacles ten inches or twelve inches in diameter should be used. As indicated, water should be very carefully given a this stage, especially until the roots get a goo hold of the fresh compost. Grow them in perfectly cool, airy conditions.

Lilium.—Lilies that were potted some ionths ago and placed in cold frames are 'ell rooted and have started into growth. They ıay, according to requirements, be taken into warm greenhouse. Varieties of L. auratum nd L. speciosum are best grown under ordi-ary greenhouse conditions, although the latter ıay be forced if it is desired to have plants ı flower quickly. Lilium longiflorum and its arieties may also be forced, and successional atches should be introduced into a warm ouse. A sharp watch should be kept for reen fly, which is apt to attack Lilies when he flower buds are showing. Such attacks hould be prevented by occasional light fumi-ations. All stem-rooting Liliums should be otted deeply in large pots, or else space nould be left in the receptacle for applying top dressing. Lilium Henryi, although one f the hardiest of Lilies, should be more gene-ally used for conservatory decoration, as it s a very elegant plant, and does very well 'hen grown in large pots. It is a lime-lover, nd needs a much heavier compost than the ıajority of Lilies. L. regale, one of the most eautiful of hardy Lilies, also succeeds ex-eptionally well under pot cultivation, and, 'hen better known and available in quantity, s likely to be largely grown in pots. This pecies is easily raised from seed, the seedlings ommencing to flower in their second year.

Exacum affine.—This is a free-branching lant, and produces its small flowers with 'onderful freedom. It may be treated as a tove annual, but much finer samples may be roduced if seed is sown the previous autumn. ts successful cultivation presents few diffi-ulties.

HARDY FRUIT GARDEN.

y A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Frost and the Fruit Blossom.—Wintry condi-ions of the past few weeks have caused great nxiety to fruit growers. To find material for he protection of large areas of top fruits, wall rees, and, perhaps, Red Currants and Goose-erries has been a problem. The dry atmo-pheric conditions will, it is to be hoped, lessen he damage to fruit blossom by frost. The ıajority of trees have this spring been laden vith expanded, and developing blossom, and it is o be hoped that fruit growers in the south. t any rate, have still the promise of good crops.

Spraying.—An examination of flower trusses n Apples reveals the presence of Apple blossom veevil and caterpillar, and the damage by these ests, if combative measures are not taken in ime. will soon be evident. An efficacious emedy is to use a combined nicotine and rsenate wash. The arsenate of lead should be issolved separately to a milky consistency and dded to the mixture. Do not use this highly oisonous specific near growing vegetable crops, nd it must be borne in mind that this insecti-ide must not be used if the flowers of the fruit rees have opened. The spraying may be done ust before the expansion of the bloom, and after he flowers have set. It is essential that all arts should be dewed over with the spray, electing a quiet day for the work. Continue spray Black Currants with paraffin emulsion r the destruction of big bud, having previously icked off all obviously affected buds, which hould be burnt forthwith.

Disbudding.—As shoots develop, disbudding ıould be continued, suppressing all the stronger nes. In the case of some wall trees the wires ıay have been placed too near to the wall to fford sufficient room for the foliage to de-elop. In placing new wires on walls, this diffi-ulty should be obviated by allowing 1 inch to ½ inch space from the wall. A clamp and rew-eye should be fixed at one end to allow of e wire being tightened or slackened at any me.

Mulching.—Proceed with the mulching of all uit trees on light soil. The thinning of fruits n Peaches, Nectarines and Apricots should be ttended to as they develop.

TREES AND SHRUBS.

SOME DWARF HYPERICUMS.

To begin with the least of the dwarf Hypericums, the delicate beauty of H. cuneatum must appeal to all rock gardeners. This tiny, prostrate plant has very slender and most brittle crimson stems sparsely clothed with wedge-shaped leaves, which are pale blue on their undersides. These growths often do not attain the length of six inches before they terminate in a large red bud, which breaks into a golden blossom so big that it seems altogether out of proportion to the size of the plant. This is a most fascinating little alpine, but it does not appear to be quite so robust as many.

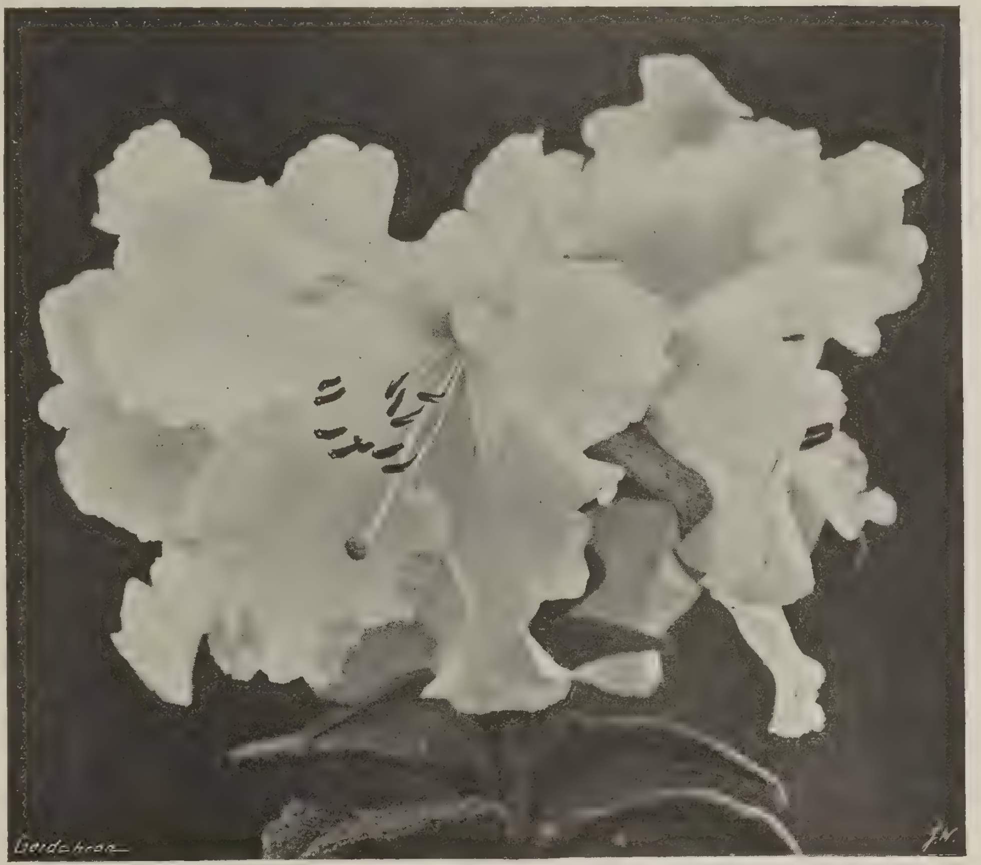

FIG. 111.—RHODODENDRON BULLATUM; R.H.S. AWARD OF MERIT, APRIL 24 (SEE PAGE 237).

Near to the above comes H. nummularium, which is still a difficult plant to obtain true from nurserymen. Like the above, it is prostrate, or nearly so, the shoots being some 6 to 12 inches long, and set with pairs of rather round, grey-green leaves with a paler under colour. This is one of the most distinct of the smaller St. John's Worts and one that seems to enjoy slightly cooler conditions than do most of these sun-loving plants.

H. Coris will always rank among the treasures of the rock garden, for it is easy to grow in any warm, free soil; it comes from seed very readily and lives long under all but the bleakest conditions. The wiry stems of H. Coris rise in great numbers to about six inches, making in a few years a large, bunchy cushion of elegant growths furnished with a multitude of fine grey leaves. These stems bear in early summer bright golden flowers, which continue in bloom more or less the season through. The only species among those commonly grown that is likely to be confused with Coris is H. fragile, but the leaves of the latter are very much broader, thus giving the plant a heavier, greener appearance. H. fragile is as free blooming as and easier to cultivate than the well-known H. reptans, which must, however, claim precedence over both of the above in size of flower and redundancy of growth.

A good form of H. olympicum, which has similar, glaucous foliage and a semi-erect habit, is a plant of the rarest beauty and one that in the poorest soil will produce numbers of blossoms of great size, substance and brilliancy. These are borne in terminal clusters in full summer, and a well-grown specimen, some nine inches in height and nearly twice as much in width, is an object of extraordinary loveliness. H. polyphyllum might be described as a lesser olympicum, being smaller in all its parts. It is one that is specially noteworthy for its habit of blooming later than most of its kindred, and it is, like the foregoing, quite amenable to any ordinary treatment.

H. repens differs from all the above in having fine, Heath-like foliage which covers the soil with a close-set mat. From these prostrate branches ascend in the late summer flowering spikes of about nine inches in height. These send out at intervals flowers of a peculiarly firm texture, and of a less burnished but intenser yellow than those of the majority of its kind.

Among the downy-leafed members of this numerous tribe, H. origanifolium is perhaps one of the best known. It is a pretty little plant of six inches or so in stature, with small, blunt, grey-green leaves and flowers of average size in the prevailing yellow of the race. H. tomentosum is even woollier than the foregoing, and a species that does not appear to be common in any clearly-defined form. Its somewhat woody branches rise to about six inches, but are semi-prostrate.

H. Kotschyanum is another of the woolly-leafed St. John's Worts with a family resemblance to the above in its bluntly oval leafage and flowers, and the same is true of H. pubescens, which is held to be a superior form of H. tomentosum. All of these hoary-leaved kinds seem to appreciate lime (a partiality which is indeed shared by most of the genus, though its members do not demand it) and they are naturally more averse to wet than other species.

Vast as is the number of Hypericums in cultivation, it is doubtful whether the average amateur gardener need go beyond the above few in making a selection of the choicer kinds for a small rock garden. *A. T. J.*

PROPAGATION BY CUTTINGS IN ACIDIC MEDIA.

The propagation of plants by cuttings is carried out in many different ways, and opinions on the merits of the various methods are very diverse. Purely empirical or "rule-of-thumb" methods have been general for centuries, and it was left to the genius of the late Sir Isaac Bayley Balfour to introduce some glimmer of logic into the process.

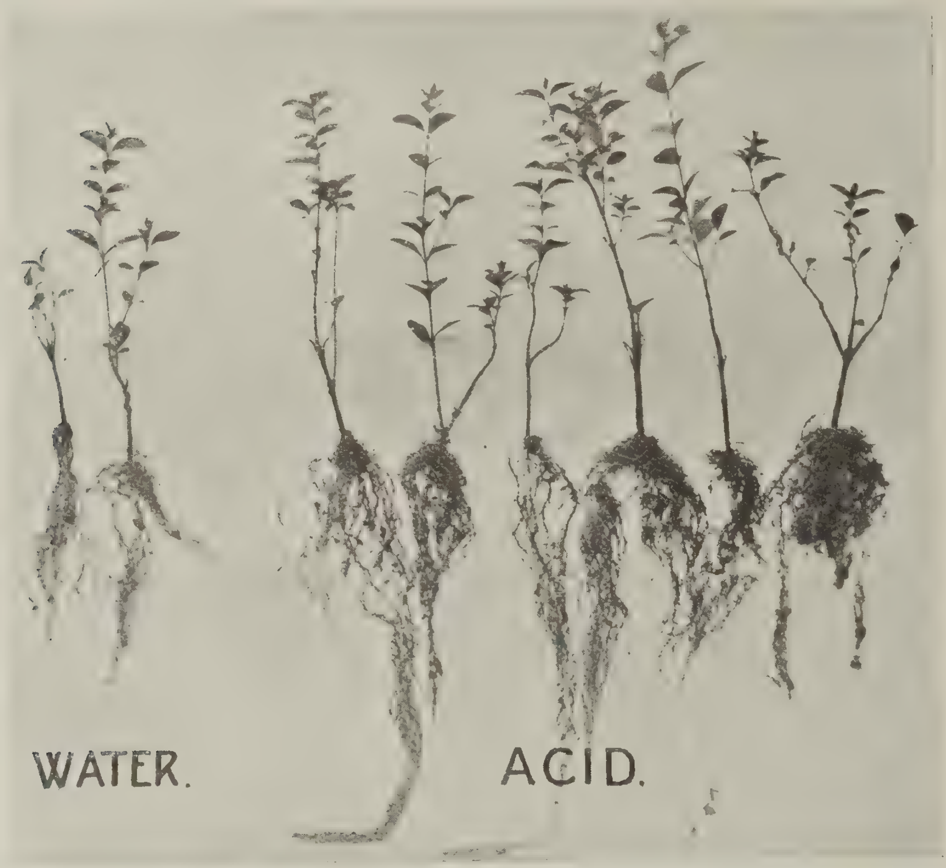

FIG. 112.—LEFT: TWO OF TEN CUTTINGS OF PRIVET WATERED WITH TAP WATER; RIGHT: SIX OF TEN CUTTINGS WATERED WITH 1 IN 10,000 ACETIC ACID (= THREE TEASPOONFULS OF ORDINARY WHITE VINEGAR TO ONE GALLON OF COLD WATER).

In spite of the specially persuasive methods practised at Edinburgh, the percentage of Oak cuttings which struck root was very low. The Oak had not previously been propagated in this way, and success with even a few cuttings out of a hundred after some ten or twelve months was something new. After reading that section of the writer's *Textbook of Botany* which deals with acid root and alkaline shoot, the acute and eminently practical professor put the matter to Mr. Lawrence Stewart, Head of the Plant-Propagating Department, in some such words as these:—"If Small be right, we should make the ends of these cuttings acid when we want roots." Then, after some discussion, these two eminent authorities on plant propagation decided to water the Oak cuttings with water in which peat had been allowed to soak for some time. The result was a large increase in the percentage of successes, and a reduction of the time for rooting from ten months to two months or less.

With permission and every encouragement from the Edinburgh workers this investigation of the propagation of plants in acid media has been extended at Belfast by Miss M. J. Lynn, M.Sc., and the writer, with interesting results. We started with a large number of cuttings from plants which are difficult to propagate in this way, but the preliminary arrangements were found to be faulty. We then decided to use plants, cuttings from which are known to strike root freely, and to employ a comparative method. As the action of peat water might have been due to auximones or other substances we used diluted acetic acid. Boxes, 30 inches long, 8 inches wide and 6 inches deep, were filled with coconut fibre and covered with lids of similar dimensions with glass top and front. The top glass was arranged so that it could be drawn out gradually for ventilation, and two elliptical holes in the wooden ends of the lid served as ventilators and handle-holes.

Five such boxes were used in the first tests with 50 Rose cuttings in groups of ten. These were watered periodically with: 1, cold water; 2, hot water, about 60° C; 3, cold dilute acetic acid, 1 in 1,000; 4, cold dilute acetic acid, 1 in 10,000; 5, hot dilute acetic acid, 1 in 10,000.

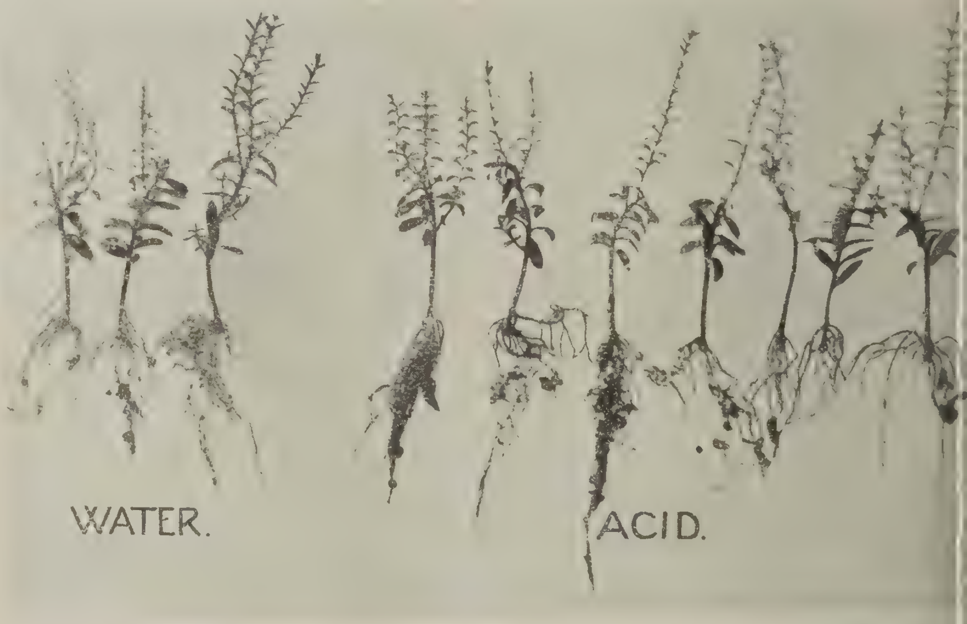

FIG. 113.—LEFT: THREE OF TWENTY CUTTINGS OF VERONICA WATERED WITH TA
WATER; RIGHT: SEVEN OF TWENTY CUTTINGS WATERED WITH 1 IN 10,000 ACETI
ACID.

The Rose cuttings were inserted loosely in
coconut fibre which retains moisture well
is very slightly acid in itself. Within th
weeks two cuttings struck root, and these
in the set which was being watered with
acid. Within six weeks eight of the ten
tings in hot acid had struck root, while
other sets showed not more than from one
four cuttings with roots.

Another test was made with Chrysanthem
cuttings, of which eleven were treated with
water alone and nine with hot acetic ac
1 in 10,000. Within one week seven of
nine in hot acid had struck root and the ot
two struck during the following week. Of
eleven watered with hot water only two str
during the first week and another one dur
the second week, while the rest failed al
gether. This experiment was repeated recent
using cold water and cold dilute acetic ac
Four of the six Chrysanthemum cuttings stru
with water, and eight out of eight struck wit
two weeks when watered with 1 in 10,000 ac
acid used cold. In ordinary garden soil, water
with cold dilute acid (three teaspoonfuls of or
nary white vinegar to the gallon of cold wa
we have struck many Chrysanthemum cutti
and have never had a single failure when
acid was used.

Another test was made using the five bo
as before, but at one stage the hot acid was u
while still too hot, and all the slips in t
box were killed. Ten slips of Rhododend
(species?) in each box gave callused but
rooted cuttings in three months, arranged
follows:—cold water, none; hot water, t
1 in 1,000 acetic acid, two; 1 in 10,000 ac
acid, five. Ten slips of Privet in each
gave rooted cuttings within six weeks, as
lows:—cold water, two; hot water, six (
very healthy); 1 in 1,000 acetic acid, th
1 in 10,000 acetic acid, six (very healt
Twenty slips of a small-leaved shrubby Vero
from an old bush gave rooted cuttings in th
months, as follows:—cold water, three;
water, none; 1 in 1,000 acetic acid, none; 1
10.000 acetic acid, seven. The cuttings wh
struck root in cold water and in the 1 in 10,
acetic acid were transplanted into a box of
same type. Not only did more slips
Privet and Veronica strike root in the
medium, but in most cases they also develo
much larger and healthier root-systems (
Figs. 112 and 113).

After these first experiments had demonst
that vinegar, at the rate of three
spoonfuls to the gallon of water, probably
as an aid to root-production by cuttings,
writer used it with success on ordinary g

il (Ph. 5.5 to 7, as indicated by the kinds weeds). Antirrhinums gave 100 per cent. of ccesses, and Calceolarias only slightly less. iddleia globosa and Hydrangea sp. were struck mid-summer while in full blossom. Lonicera ida and Olearia macrodonta were also struck mid-summer, as well as other flowering shrubs. Escallonia langleyensis was experimented with greater detail. Slips or twigs, one, two, three d four years old were inserted in garden l which had been well watered with the negar fluid, and were watered again with e same acid liquid whenever necessary. There re no failures out of 24 cuttings with the e-year-old twigs. The two-year-olds showed successes out of 12; the three-year-olds 9 out 12; and the four-year-olds 3 out of 6.

A once sceptical chemist has also reported the lowing :—"Two dozen 'Japonica' cuttings re put in earth in the open on March 21. e dozen were left to be watered by rain, other dozen were watered twice with parts of ordinary vinegar in 200 parts of rm water. On May 2 the first dozen were dead, while nine of the second dozen had uck root and seemed quite healthy."

The result of another experiment is still ubtful. Five Apple tree branches from one one and a half inch thick at the base re treated last spring as cuttings with hot ute vinegar. Four, after showing the usual longed period of vitality, died off during winter. The fifth, originally seven and a lf feet long, died off from the tips towards one-inch stem. During the present spring e buds on a short lateral branch about four t from the ground level burst open, but ese are gradually withering up. In addition, out half-a-dozen very healthy-looking dormant ds have developed on the main stem, two three feet from ground level, and these ow every sign of further growth. Whether is revival of activity is due to reserves stored the large stem or to the production of roots, er the manner of the Poplar fence posts of lifornia, remains to be seen.

According to the theory of acid root and caline shoot, upon which the acid method propagation by cuttings is based, this difference in reaction of the opposite ends of the ant is mainly due to the difference in the rbon dioxide balance. The green shoot uses the acid carbon dioxide gas to make sugars d starch during the day; while the root in spiring below ground is always producing, but ver using up, the same acidic gas. It is interesting, therefore, to note that experiments th the Spotted Laurel, Aucuba japonica, show at carbon dioxide alone has a stimulating ect on the production of roots by cuttings. the first experiments with Aucuba cuttings e out of six callused and two produced four ots when treated with carbon dioxide. The s was bubbled once a week for four weeks rough the water into which dipped the lower ds of the cuttings. A duplicate set treated the same way with air showed only one out six with a little callus and two roots; the her five died off. This experiment was repeated later with twelve Aucuba cuttings in ch jar. With carbon dioxide "aeration" ght of the dozen struck and developed 24 ots; while in the duplicate set, treated with r only, six of the dozen struck but developed ly 14 roots (see Fig. 114).

Other experiments with the American lifeant, Bryophyllum calycinum, have been repeated with similar results. The leaf is cut two along the midrib, and one half is treated ith carbon dioxide, while the other half is eated with air only. More and longer adventitious roots are developed in the first case an in the second, and the shoots which grow the jars treated with the carbon dioxide show any of the signs of etiolation.

On the whole therefore, although the experimental work with species which are difficult strike is still in progress, it is reasonable conclude that vinegar, in the particular very ilute form used, is a useful medium in the ropagation of many plants by cuttings. *James mall, D.Sc., Professor of Botany, Queen's niversity of Belfast.*

THE ALPINE GARDEN.

SCILLA LILIO-HYACINTHUS.

The Lily-rooted Squill, Scilla Lilio-hyacinthus, has been in flower for some time, but is now almost over. It is a bulbous plant, but little known in gardens, although it is, I believe, so plentiful on the Pyrenees that there is no reason why it should not be imported in quantity if a demand for it arose. It is a very old plant in British gardens and, among others, Philip Miller gave a full description, noting in particular the Lily-like scaled formation of the bulbs, which is exceedingly uncommon among the Squills. It was, I understand, at one time placed in a distinct genus, under the generic name of Lilio-hyacinthus, which was afterwards adopted as the specific name.

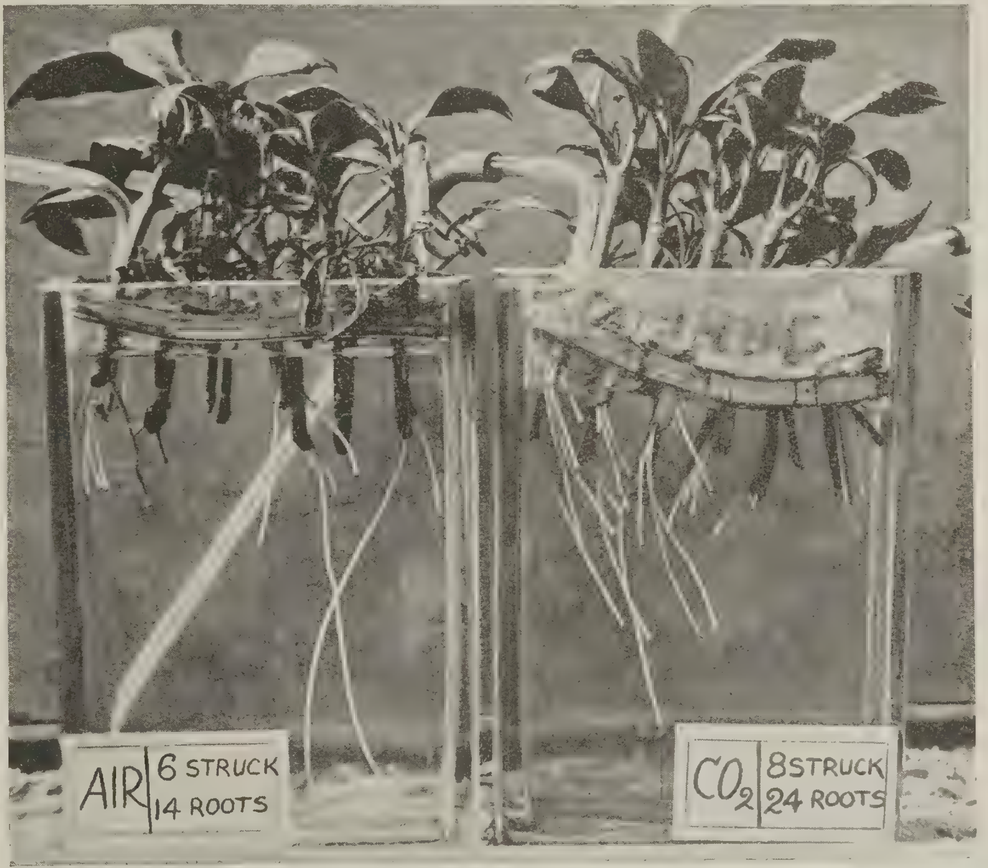

FIG. 114.—GLASS JARS EACH CONTAINING TWELVE CUTTINGS OF AUCUBA JAPONICA. THE JAR ON THE LEFT WAS TREATED WITH AIR AND SIX CUTTINGS ROOTED, DEVELOPING FOURTEEN ROOTS. THE JAR ON THE RIGHT WAS TREATED WITH CARBON-DIOXIDE AND EIGHT OF THE CUTTINGS ROOTED, DEVELOPING TWENTY-FOUR ROOTS.

Many years ago the rather rare white variety, S. Lilio-hyacinthus albus, was grown in great quantity in a very old Scottish garden, where it has been from time immemorial, so far as the family were aware. Its name was unknown, and some of us who were profoundly interested in uncommon bulbs, had a considerable amount of trouble ere we discovered its name. It was thought by some to be one of the Ornithogalums, but it was unlike those plants, and ultimately its identity was determined. This Scilla cannot be classed amongst the best garden plants; its floral racemes appear rather too small in proportion to the fine broad foliage, yet it has certain attractions. The leaves are very broad and glossy, resembling those of one of the larger species of Colchicum, and the flower racemes or trusses, which are a little conical in form, are generally of a good colour, ranging from a light violet-blue to a soft purple. Some have an inclination to pink (Miller speaks of a red one), and I have little doubt but that a search among the wild plants would reveal a greater variety. I have had four or five distinct shades among the plants I have obtained from time to time. The plant's value in the garden is somewhat limited. It should do well in grass in the wild garden where rabbits are excluded; it is not out of place in a border, and it looks a suitable subject on large rockwork. It generally flowers in April with me, but has been in bloom earlier this season. Any good soil seems to suit it. I consider that this bulb, in the hands of the expert, might be evolved into a plant of high garden value. When we consider what has been done with the wilding Hyacinthus orientalis, the original parent of our garden Hyacinth, there seems no reason why the Pyrenean Lily-rooted Hyacinth should not yield excellent results in the hands of a skilled florist.—*S. Arnott.*

THE WHITE GARLAND FLOWER.

This very sweet-smelling plant—Daphne Cneorum alba—is rare in nature. When I was a boy I heard of it growing on the limestone cliffs above the Vallée de Joux (Jura Vaudois). I believe it was in the month of June, 1892, that I saw it for the first time on the north side of the Mont Tendre. I took with me one or two branches only, which we grafted upon D. Mezereum. But it did not succeed, as it was in full flower. I never could find it again until 1902, and at that time we grafted it later and had good results. Now we have large tufts of it, flowering in profusion during May and June.

The plant (Farrer insisted that we call it Cneorum alba and not Cneorum album) never grows so high as D. Cneorum, but it seems much more floriferous than the type; it is covered with its pure white flowers in such a manner that one can hardly see the foliage at flowering time. In nature I do not believe it has been found elsewhere than on the very sunny and rocky slope between the Col du Marchairuz and la Vallée de Joux, at 3,000 feet elevation. It never seeds with us at Floraire. *H. Correvon, Floraire, Geneva.*

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 14.—DAMYON.

DAMYON, a rounded hump of porphyry apparently about 21,000 feet high, is the first definite snow peak on the Mekong-Salween divide, north of the Ka-ga-pu massif. Strictly speaking, it is on the Mekong-Wi-chu divide, the latter river being an important tributary of the Salween. I say the first definite snow peak, for there are numerous "dead" glaciers hidden away in the couloirs between Ka-ga-pu and Damyon.

From the village of Ya-ka-lo we descended 1,200 feet into the Mekong gorge, and crossed the river. There was quite a lot of the flabby Nivalis Primula (K.W. 5359) here, on both banks; nothing else of much interest. From the Mekong we climbed 3,803 feet by one of the steepest zigzag paths I have ever encountered, to the monastery of Le-gong, perched on a narrow ridge, with a deep, stony valley immediately behind it. The razor ridge ended in a cliff overlooking the gorge at one end, and rose up to the glaciers of Damyon itself at the other. Absolutely impregnable, you would consider the fortress-like monastery; yet it had been taken with ease during the Tibetan rebellion of 1909, and was, as a matter of fact, in utter ruin; so much more does human courage and resolution count than the accident of position. Consequently, there was not a monk to be seen, and Le-gong now comprises three wretched families living in hovels.

Two roads diverge from Le-gong, one up either valley; that to the north goes to Damyon, that to the south-west goes to the Pi-tu La, and is the main road to Tsa-rong. We chose the former.

On September 1, therefore, we started up the valley, following a very rough path. Here the valley was filled with scrub, chiefly Poplar on the north face, dwarf Oak on the south face, with Rhododendrons by the stream; the latter were familiar species, chiefly R. decorum and R. brevistylum (my "rusty leaf"), or other of the Heliolepis group. In fact, so far, the vegetation was exactly like that of corresponding valleys on Pai-ma-shan. Presently I stumbled on a solitary Primula wedged amongst the boulders. It was one of the Capitatas (the section is now called Sphaerocephala, I believe), just quickening into flower; perhaps P. pseudocapitata itself. If so, the latter, which I introduced from A-tun-tzu some years ago (though I believe it never got much farther than the Edinburgh Botanic Garden), is a much finer plant than I realised.

A little higher up we came upon whole meadows of it; it frilled the edge of the forest with its bald globes, at first very sleek and white, soon to be granulated with violet, as the corollas broke through the crust. When we returned this way on September 6, it was in full bloom, and doubtless it would last through September and into October—a very late flowering species, and one worthy of cultivation for that reason, if for no other. But, as a matter of fact, it is a beautiful species. A mop of violet, vase-shaped tubes, awash in a foam of snow-white meal, the whole hoisted not high above a bunch of sea-green, slightly bullate leaves—that is Primula pseudocapitata, or, at any rate, near it (K.W. 5364).

When discussing the uses of meal in the genus Primula recently, I did not mention that, as in this case, it often affords protection against rain. These plants come up in August, before the heavy rain ceases, smothered in meal. I was surprised, a few months later, to find a Poppy growing at so low an altitude in a soil so dry and harsh. True it was a starveling, prickly in a spiteful way, dissipated. The few flowers near the base were glum and weakly purple; the swart capsules at the top of the scape had hastily opened their pores to emit half-ripened seeds. Not a good feature could I find in the silly plant, which was evidently Meconopsis Prattii of the Aculeatae group, another A-tun-tzu plant. Later I found plenty of it above Tsa-ka-lo, both on granite and limestone; but it is a very poor form of M. Prattii (K.W. 5365).

The next plant I noticed was Primula septemloba, in fruit; an old acquaintance, widely distributed in the north-west corner of Yunnan from Mu-li to Damyon. Another Primula in fruit, not abundant on Damyon, was one of the Muscarioides group—probably P. muscarioides itself. It, also, is a woodland species (K.W. 5381).

By this time we had entered the mixed forest, and were climbing over mounds of boulders piled up by former glaciers. The only tree Rhododendron here was "giant rose" of Mu-li; but the forest belt was very narrow, beginning at about 4,000 feet above the Mekong and coming to an end at 6,000 feet. Towards the upper limit of forest, and extending into the alpine zone, was a Maximowiczii Primula in fruit, probably P. szechuanica, probably, also, identical with the Mu-li plant; it is very like it in capsule and foliage (K.W. 5366).

We halted for lunch on a terrace, at the foot of a fine cascade, where the glacial features became more pronounced; the forest came to an end here, and scrubby bushes of Rhododendron cephalanthoides dotted the slopes with a wiry Intricatum and patches of a larger scrub species. In the afternoon we climbed fast, ascending from terrace to terrace up steep boulder pitches. A heavy mist came rolling up from the Mekong, hiding the cliffs, and presently it began to rain. However, we had seen enough to convince us that Damyon was as dry and barren as the Mu-li country, and that its alpine flora was probably very similar, and still more like that of Pai-ma-shan. Between 15,000 and 16,000 feet we halted, pitching camp just above a chain of glacier lakes.

On September 2, the weather improved, and I climbed up to a pass west of the main valley, and about 1,500 feet above camp. There were many yellow Saxifrages in flower by the stream, with Corydalis, Cremanthodium and Senecio. One of the commonest semi-aquatics on the topmost terrace was a Nivalis Primula, wit stiff, leathery leaves, and fat, purple capsules which were just opening, though the seed were still green. It is a Pai-ma-shan plan (K.W. 5367).

On the alpine grass slopes, three species o Gentian were in flower, with Primula bella an P. dryadifolia in fruit. Higher still, near th limit of flowering plants, at 17,000—18,000 feet were woolly white Saussureas, a foot high Meconopsis speciosa, M. integrifolia (the dwar hairy form), and scattered plants of Lychnis Sedum and one or two Saxifrages. Nothing no already found on Pai-ma-Shan.

On September 3 I climbed the main valley— the "Valley of Lakes" I christened it. Ther were many old friends here, in fruit (old friend so far as I could judge, that is). On th earthen screes, always facing the sun, the terete crimson-tipped capsules of Primula minor wer scattered all over the place. It is a very dwar form which grows in this poor soil, the whol plant under three inches high (K.W. 5369) Numerous species of Compositae, familiar i form at any rate, were noticed. The mos striking were two allied species, each about foot high, with the terminal, globe-like in florescence closely enveloped in overlappin papery bracts (like a Brussels Sprout), yellow i one case, purple in the other. There were als two species of Crepis (C. rosularis and another) stemless, yellow-flowered capitula, flush wit the ground; and two species of Saussurea, on of which was new to me.

Right at the head of the "Valley of Lakes" was an exceptionally large lake, from whic steep, absolutely barren screes swept up t the semi-circle of cliffs. Where the wate overflowed from the lake was a wide wet terrace dotted with stones, and pools, and a network o trickling streams, with sandy intervals. Her grew scores of dome-like Saussureas, an masses of the semi-aquatic Nivalis Primula. M Tibetan guide was so enchanted with th former that he collected a large bundle of i in the hope that the wool would make goo tinder.

From the lake I ascended the scree—really terminal moraine—to the foot of the glacier which ended in a sloping, blunt snout at abou 18,000 feet. It had snowed in the night, coverin all but the end of the glacier, which wa formed of two streams, converging a short distance above the ice foot. Snow storms no drove us down to lower altitudes, but in th afternoon it cleared up again, and for an hou the summit of Damyon was visible.

On September 4 we moved our camp dow to the cascade terrace, as I had noticed a dea glacier in that direction; and in the afternoo I ascended to the hanging valley, whence th cascade sprang, without, however, seeing an trace of the glacier. So I determined to spen the next day searching for it, and returned t camp with a small Orchid and a Composite Isopyrum grandiflorum I noticed in fruit, als Diapensia himalaica and Androsace chamaejasme.

On the following day, after strenuous climbing, we reached the extreme summit of th range, but found no glacier. Frightful clif baulked us more than once, but here I found few plants new to me—two species of Corydalis a couple of Swertias, one with rich violet, th other with cream flowers, and a yello Cremanthodium. There were masses of Primul dryadifolia—or it may be P. philoresia; an as high as we climbed, about 18,000 feet, ther were flowering plants.

Rain and snow in the middle of the day agai made climbing uncomfortable, but it passed Descending a steep couloir, we suddenly cam on our glacier, tucked away in a corner; i was "dead," with no snow field to feed it, an would eventually disappear altogether.

On September 6 we returned to Le-gong gathering a brilliant Cynoglossum from the scre en route, also seed of the horrid Poppy; an I made arrangements to have seed of Primul pseudocapitata collected a couple of months late and sent to England, in case it wasn't P pseudocapitata; or if it was, in the hope o getting it distributed. *F. Kingdon Ward.*

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* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17 July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7 and 21, 1923.

SOIL ACIDITY.

HE acidity of the soil and its relation to
ility has been the subject of much study in
nt years, and there is still room for much
arch in this direction.

There is a general impression that soil
ity is necessarily harmful, but this is based
a misconception. The acidity which is un-
rable in soils is in the nature of a symptom
a diseased condition rather than a direct
e of infertility. Generally speaking a cer-
degree of acidity is necessary and beneficial
securing those chemical reactions essential
he provision of a supply of nutriment to the
t structure. It may be mentioned in
ing that the acid radicles of phosphoric,
ic and sulphuric acids are themselves among
principal sources of plant food, but as they
supplied in the form of neutral salts, this
nly indirectly connected with the subject
his article.

he main function of acids in the soil is in
noting the solubility of certain salts neces-
as plant food. Carbonic acid is the most
mon acid present in the soil, being derived
ly from the atmosphere, but mainly from the
mposition of vegetable matter. It will be
ul to quote one or two experiments illus-
ng the effect of this acid on the solubility
arious salts.

he simplest illustration of the effect of car-
c acid is the furring of kettles. Hard water
ains carbonate of lime, held in solution by
onic acid gas. When the latter is expelled
boiling, the lime is precipitated.

gain, the phosphoric acid radicle is usually
ied to the soil in the form of the practically
luble tricalcic phosphate.

loesing found as the result of experiments
, while a litre of pure water will dissolve
0.7 of a centigram of the acid radicle, it
dissolve 15 centigrams or over 20 times as
h when saturated with carbonic acid. Most
ing results were obtained from experiments
lucted on soils containing sparingly soluble
sh salts, the solubility in this case being
eased over 60 times. Similar results were
ined from experiments on soils containing
ium and magnesium salts.

any of the organic acids, such as formic,
ic, butyric, oxalic, etc., are secreted by soil
eria, and probably play an important part
ncreasing the availability of various salts as
t food.

aving indicated the benefits derived from
ul acidity, it is necessary to consider the
lem of harmful acidity. This usually occurs
undrained, peaty soils, and it may be at-
uted largely to stagnation, due to non-
tion. Under these conditions aerobic
eria, whose function is to promote oxidation
rganic matter, are unable to survive. Their
e is taken by anaerobic bacteria, which set
n entirely different putrescent fermentation
lting in the formation of various substances
terious to plant life. Among these is humic
, which gives the soil its characteristic
ity, though this substance is not by any
ns the sole cause of the partial sterility. As
ested earlier in this article the presence
his acid is a sign of a diseased condition of
soil, and the remedy is to remove the cause
tagnation by drainage, which will allow the
to be aerated in the usual manner.

will be noted that in acid cases it is not
cient to add lime. Under conditions of
nation even a calcareous soil may become
. This is illustrated by studying the flora of
of our valleys, consisting of one type of
often calcareous, yet carrying a very
ed flora. On the higher plains aeration is
l, and oxidation is carried on without diffi-
y. Leguminous plants and the finer grasses
ominate. Lower, on the lesser drained land,
idity increases; the Legumes disappear and
se grasses and other forms of vegetation
their place. If a stream runs through the
om of the valley, and the land adjoining
becomes waterlogged, the grasses in their
have to give way to rushes and sedges, the
acteristic vegetation of stagnated or acid soils. No neutralising agent can reclaim this land to fertility until steps are taken to drain it, and make possible the oxidation of its organic content.

It is, however, necessary to emphasise the fact that on land under intensive cultivation, soils frequently become infertile through an insufficient quantity of lime, and if Leguminous plants in general show signs of starvation, it is a pretty sure sign that lime is deficient. This is particularly liable to occur in soils which receive heavy dressings of organic matter.

The form in which lime should be given may be open to discussion, but in most cases ground limestone is generally preferable to caustic lime. This should be applied after digging in the winter, or early spring months, at the rate of 5-6 cwt. per acre, and at least every second or third year. On soils very rich in humus such as the peats, caustic lime may be used, but it is distinctly disadvantageous to use it on soils not rich in humus, as its action is to destroy organic matter. *W. Auton.*

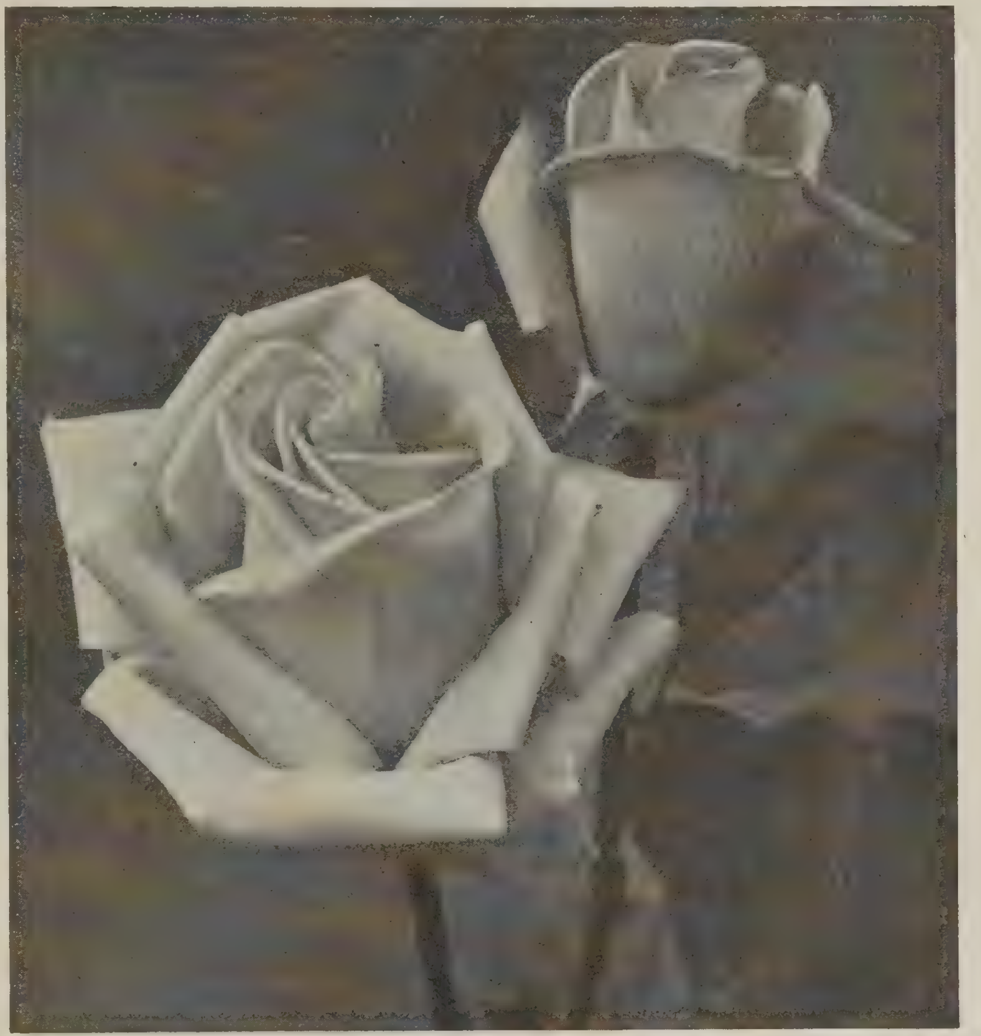

FIG. 115.—H.T. ROSE DECEPTION; N.R.S. GOLD MEDAL, APRIL 20 (SEE PAGE 236).

ORCHID NOTES AND GLEANINGS.

ODONTIODA DELTILIA.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), sends the first flower of this pretty, yellow-ground Odontioda, which promises to develop into a very fine and distinct form. It is the result of crossing Odontoglossum Delta (Othello × Rolfeae) and Odontioda Cecilia (Cochlioda Noezliana × Odm. Wiganianum). The Odontoglossum parent is a Warnham Court hybrid with Odm. Othello, which is a favourite, fine results with it having been secured in Odm. Wilchello (Othello × Wilckeanum) and others. Similar good results have been noted in Sir Jeremiah Colman's gardens at Gatton Park, two superb examples being Odontoglossum Maid of Gatton (Odm. Adrianae × Odm. Othello), in which it should be noted that the comparatively small species Odm. Hunnewellianum, with its intricately crimped lip, takes part in both parents; and Odontioda Othello (gattonensis × Odm. Othello). On several occasions we have noted the good effect of Odm. Hunnewellianum in hybrids, giving unexpected results in fixing the yellow ground, and extraordinary expansion of the lip, the theory being that the crumpled lip lends itself to expansion when hybridised.

In the flower of the new Odontioda Deltilia all the segments are broad, and especially the lip, which is perfectly flat, the influence in this organ of Odm. Hunnewellianum appearing only in the fringed margin. The sepals and petals are bright Buttercup yellow, with a large red-brown blotch and some smaller spots in each. The lip is slightly lighter in colour, with small red spots around the yellow crest, and a transverse line of red.

STELIS TRISTYLA.

A slender spray with numerous small purple-tinted flowers taken from a compact specimen with twenty-two racemes of flowers shown at the Royal Horticultural Society, is sent by H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), who has a most interesting selection of rare Stelis, Octomerias, Pleurothallis and allied genera. None of the Stelis has showy flowers, but there is a charm about their compact habit and shining green leaves, producing from their bases these elegant sprays of flowers. The flowers of this species remain closed during the day and flatly expand the equally parted segments at night.

PALMS OF THE RIVIERA.*

In all my foregoing articles I have mentioned only those Palms which have proved absolutely hardy in my garden—which offers conditions of situation, soil and climate below the average of the Riviera—and therefore can be planted anywhere here or in similar climates with perfect confidence. Very many other less hardy Palms have been tried by me, and the results have been published in various French periodicals, notably in the *Bulletin de la Société Nationale d'Acclimatation de France*. As most of these delicate Palms succumbed as soon as the winter was not particularly mild, I shall not name them, though several of them might survive on the Riviera to the east of Nice, where the temperature hardly ever falls to freezing point, and nearly always, even in the coldest winter, remains well above it.

Since my purpose in writing these articles is to give only a brief review of those Palms that have stood their trial, I shall content myself with naming those kinds which, though less hardy than those already named, may be cultivated successfully by taking some simple precautions, such as I shall now indicate.

It is well known that a very efficient shelter is afforded by evergreen trees, not only as wind breaks but also as a protection against frost when such trees bear spreading branches, underneath which the delicate plants grow. The difficulty, however, is how to give sufficient shelter without depriving such plants of the sunshine so beneficial and necessary, especially in winter. Thus certain Palms which require the full exposure to sun cannot be advantageously cultivated even in half shade, and though sufficient protection against low temperature might be afforded by shelter trees, they will not succeed. There are other Palms, which, though they may prosper well and also flower and fruit well in the full sunshine, will grow also in half shade, where their foliage may be more graceful and of a deeper and purer green colour, though they may rarely flower. But since, as a rule, the decorative value of Palms depends more on their foliage than their flowers, there is good reason to plant such Palms even where they will succeed only when grown underneath evergreen trees.

A variety of evergreen trees can be used on the Riviera as shelter trees against low temperatures, while for wind breaks many more are efficient, but none surpasses the famous and common columnar Cypress (Cupressus sempervirens) planted so as to form a kind of wall perpendicular to the direction of the cold winds. Two conditions are essential in choosing evergreen trees for protection, namely, that the branches shall be sufficiently spreading to shelter a certain space, and that the foliage should not be so dense as to exclude all rays of the sun. Further, such trees which send their roots along the surface of the soil are to be avoided, since they will prevent the full development of the delicate Palms growing underneath their branches. I shall not here name the many shelter trees which I have tried with more or less success, but shall immediately state that the best, according to my experience, is the well-known Pepper Tree (*Faux Poivrier*—Shinus molle, L.). This tree, though it is common, ought to be even still more so, since it is perfectly hardy, having suffered nowhere even during the great frost of December, 1920—the worst experienced on the Riviera since 1820. It is perhaps the most graceful of all trees cultivated here, and certainly one of the most beautiful, with its gracefully drooping branches and exquisitely fine and delicate foliage. It is a dioecious tree, and the female plants acquire an additional and most extraordinary beauty when they are loaded from the end of autumn to the end of spring with their coral-red berries carried on long, hanging branchlets. These berry-bearing branches are much used for decoration and exported in quantities to Paris, London and elsewhere during the winter. This remarkably beautiful tree with its light foliage does not favour too dense shade, neither do its roots follow the surface of the soil, and its crown covers a reasonably large space, on which can be planted, underneath, those Palms which need its shelter. But as with so many trees, the Pepper Tree branches right from its base, and would thus cover the ground so closely to the surface that there would be no room for the development of the Palms; therefore it is necessary to train the young Pepper Tree on a supporting straight and tall Bamboo stem or similar strong support, and, as the Palms grow, the lower branches should be cut away so as to leave a clear trunk carrying its graceful crown of drooping branches. I have trained in this way Pepper Trees which are now about twenty metres high and have a clear trunk of some twelve or fifteen metres; these form a most beautiful arch above Palms and other plants in need of their protection. *Dr. A. Robertson Proschowsky, Jardin d'Acclimatation, Les Tropiques, Fabron, Nice.*

OAK TIMBER.

OAK TIMBER EIGHT AND A HALF CENTURIES OLD.

I have just had an opportunity of examining some of the timbers from the original wooden castle that was erected on Rayleigh Mount, in Essex, in 1066. Having been built on the natural surface of the hill, the timbers became buried beneath about ten feet of soil, at the time the site was heightened to form the foundation of the later stone castle. Around these timbers when found in the carpenter's yard was a thick layer of chips and bark to nearly a foot in depth. On an examination of the timber, some pieces of which are 18 inches through, it was found to be in a wonderful state of preservation, while in many cases the chips were covered with the original bark.

On recently cutting the wood it was found to be as black as bog Oak, solid and firm, some being of the consistency of chalk. The tree stems had been dressed by an adze, and the joints of the beams, though rudely constructed, were stoutly joined by wooden pins. When age is taken into account, this is the best preserved Oak timber that I have seen. The original timber roof of Westminster Hall, which was sent from Ireland by King William Rufus, in 1098, has entirely disappeared, so that the recent find on Rayleigh Mount may be considered as about the oldest, and best preserved Oak timber of which we have an accurate record. *A. D. Webster.*

CULTURAL MEMORANDA.

HOLLY HEDGES.

The common Holly has few equals as a hedge plant in this country, and, although its growth is comparatively slow in the first year or two, remarkably fine hedges may be had in from twelve years to fifteen years of planting, when attention is paid to the needs of the plant. A well-grown hedge of this tree is more in keeping in a garden than a wall or fence, and is even more impenetrable to intruders.

There is no better time than the end of April and the month of May for planting, as the roots are now very active and begin to grow quickly in the new soil. Plants up to 5 feet or 6 feet high may be used if desired, the distance of planting depending on the size of the plants. Whatever sized plant is used, however, it is essential that it should be well furnished at the bottom and that firm planting should be practised.

If the soil is dry when the hedge is plante it should be well watered and mulched wi rotted manure.

The Holly is not a very exacting plant, a grows freely in almost any position whe shrubs succeed, but it likes more than an thing a well-drained soil, rich in orga matter. Where such conditions exist, lit preparation will be necessary beyond worki the ground thoroughly to a depth of 2 fe Where the ground is poor, liberal additio of partially decayed manure should be i corporated with the soil during this proce

Liquid manure is at all times benefici and established hedges which show signs impoverished conditions may be helped by t application of blood manure.

Hedges carefully planted and trimmed ba annually make impenetrable fences in a f years, and, if the roots are fed and the sho clipped, remain in perfect condition for a lo time. *W. Auton.*

VEGETABLE GARDEN.

TROPAEOLUM TUBEROSUM.

An edible tuber that can resist blight a disease and has all the good qualities of Potato, and more, is something worth find and utilising. Not many people outside P know the Mayua—the tuber of Tropaeol tuberosum, though a few individuals in Fra have made good use of it, growing it under name of the Capucine or, again, the Mastou tubereuse. In Peru the Mayua is the sta food of thousands; in particular, through the Andean province of Popayan, which ri some 9 to 10,000 feet above the sea. Livest is particularly fond of the plant.

The Mayua, which is the tuber of Tropaeol tuberosum not only remains free of blight a disease, but is a heavy yielder, and may cooked or eaten raw. It has no earthy smell the Potato, and keeps well when stored. plant produces from ten to fifteen tubers t root, each in size as large as an average Pota and varying in shape, round, kidney or p topped shaped, according to kind. The col of the tubers is bright yellow, with streaks reddish-purple or scarlet running from the e In nutritive qualities the Mayua is equal to best Potato, though with some indications woody tissue which disappear when the tube cooked.

As regards the edible qualities of the Ca cine or Mayua, French gourmets who h tasted it have given it great praise. This tu apart from its shape and colour, is very ea distinguished from any other when handled, if slightly rubbed it gives off a faint and v pleasant odour, which, when the Mayua is c or peeled, raw, becomes much stronger. Ea uncooked, cut in thin slices, or dice fashion, a salad or with meat, the Capucine is delicio There is first a rich, smooth, full flavour, t lasts for a little, and is succeeded by an agr able, peppery taste which also passes away

When this tuber is boiled all the piquant a perfumed flavour goes, but the root itself has odour rather like the Vanilla Bean, and it exceedingly pleasing to eat, with a flavour proaching that of a hard-boiled egg. The May is very rich in farina, and affords effective s tenance to the Peruvians, who depend on it much as the Irish do upon the Potato.

The tuber is grown in the same way as Potato, and in France is planted in spring af danger from frost is over. It is, however, slow grower, and is not ripe enough to lift u October. It has to be earthed up, and may trained to stakes or light branches like Pe or allowed to run on the ground. When onl few are grown, sticking is preferable, as trained plant is stronger and bears more tube

It has been found that the only enemies wh have to be guarded against when growing Mayua are the larvae of the white butte In other respects it is insect-proof. As an edi tuber Tropaeolum tuberosum is worth the att tion of growers in this country. *N. Tourne Thundersley, Southend, England.*

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* The previous articles by Dr. Proschowsky were published in our issues for May 1, June 12, July 10, September 4, November 20, December 18, 1920; March 12, April 30, June 11, October 8, November 19, 1921; January 21, February 11, April 1, June 17, July 29, October 14, November 11, December 23, 1922, and March 10, 1923.

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for opinions expressed by correspondents.]

Economy in Private Gardens—A recent ad- rtisement in *The Gardeners' Chronicle* for adviser on garden economics brings to the re a question which is at present much dis- ssed between employers and their gardeners. ie term "garden economy" may be defined making the most of the advantages, labour id means at the gardener's disposal. The iestion of profitable work is, I think, distinct om the present subject. The wise employ- ent of labour calls for much forethought on e gardener's part; work should be so arranged at there is no waste of energy. Careful rection will often save much time, and will viate in many cases the performance of un- cessary work. The employment of up-to- te implements is another important feature in onomy of labour; many labour-saving devices e at present on the market which, intelligently ed, result in great benefit. The use of the ost suitable manures, insecticides, etc., at the oper season and in the proper manner is other great consideration in garden economy. ie aids to economical work are so obvious ider this heading as hardly to need special iphasis; yet in many cases this branch of rden management does not receive the atten- on it deserves. The selection of seeds, plants, ees, etc., and the choosing of the best varieties at suit the particular garden is one other int which needs emphasis. The many gardens l over the country are so varied in their uations and requirements that no hard and st rules can be made to govern all; the iployer and gardener must decide what is onomy in their particular garden, remember- g that economy is a virtue, parsimony a vice. *J. Craze.*

Winter Purslane (p. 190).—I gather from Mr. iton's note that the above name for Claytonia rfoliata is in actual use; could he mention in iat locality this is the case? It appears to a translation from the French, and to have iginated in the English translation of ilmorin's book on vegetables; it may, of course, w be in general use, but it does not appear in e *Dictionary of English Plant-names*, and should be glad to have a note of its actual pular employment, in view of a possible sup- ement to the *Dictionary*. *James Britten.*

——In reply to Mr. Britten my impression is iat the common name of Winter Purslane for laytonia perfoliata is in fairly general use, and ot peculiar to any locality. If this is not so, it ight to be, for the name well describes the ant. It is closely related to the Summer Purs- ne, Portulaca oleracea, but whereas the latter quires a fairly high temperature, and can only produced in frames during the winter, Clay- nia perfoliata continues to grow almost as gorously as Chickweed in all but severest eather. It is possible that the name originated the English translation of Vilmorin's book on getables, but there is considerable other evid- ice that the Claytonias are known as Purslanes. hey are North American plants, and Miss Hen- iaw's *Mountain Wild Flowers of Canada* assifies them as the Purslane family. Nichol- n's *Dictionary of Gardening* also states that urslane is applied to several species of Clay- nia, and Johnson's *Dictionary of Gardening* ills them substitutes for Purslane. There ppears, then, to be every justification for the pular name in any possible supplement to the *ictionary of English Plant-names*. The whole lant is edible, and may be eaten raw as salad. r cooked as Spinach; but it should be used efore the inflorescence appears. *W. Auton.*

——I am greatly obliged to Mr. Auton nd Mr. Gamble for their replies *re* Winter urslane. My soil here is cold clay, which, no oubt, accounts for the non-persistence of laytonia, except as an annual. I am much in- erested to know that Campanula Rapunculus an also be used. I should have thought the useous milky sap of any Campanula would have been sufficient to preclude the edibility (from the human standpoint) of the genus; but I have never met with C. Rapunculus, and it may be different from the usual run in this respect. If Mr. Auton can oblige me with some seeds of Claytonia—my stock died out some time ago—and Mr. Gamble can let me have a few seedlings of the Campanula, I shall be very glad to try both the plants in salad. Is Campanula rapunculoides also suitable for salad? It is rather commoner in gardens than C. Rapunculus, I suspect, as I have seen it several times. *C. Nicholson.*

Silver Leaf.—Whether it is a matter of this fungus in Plums or Apples, my feeling is that sufficient importance is not attached by growers and advisers to root destruction when trees have to be grubbed up. I have seen an area 20 feet square literally smothered with the conspicuous outgrowths of Stereum purpureum on dead, small, and comparatively big roots which had been left on the ground after the removal of a badly diseased tree. The advice to cut out all dead wood is excellent, but it does not go far enough. Growers should be urged, or driven, to remove all roots from the soil and immediately to burn them, and until this is done the eradication of the disease will not be within measurable distance, even if it is possible, which one ventures to doubt. Silver Leaf is, perhaps, the most insidious of fruit tree enemies, and drastic steps ought to be taken forthwith to bring it into some measure of subjection. I have seen grand trees of Lord Grosvenor and Newton Wonder Apples killed by it, and they had not been top-grafted, but were growing on an obviously suitable Paradise stock. All pruning cuts should be dressed, not simply those wounds which follow the removal of strong branches, and even then the spores of the fungus may find admission through overlooked abrasions of the bark, and it is conceivable through punctures caused by insects, but on this point I have no direct knowledge. The growers who are determined to keep abreast of the times in respect of knowledge of diseases and their treatment realise the seriousness of the position, but there are others who simply let such matters drift, and nothing short of compulsion will induce them to make a move in the right direction, whether it be directed towards the subjugation of Silver Leaf or any other enemy of fruit trees. *W. T.*

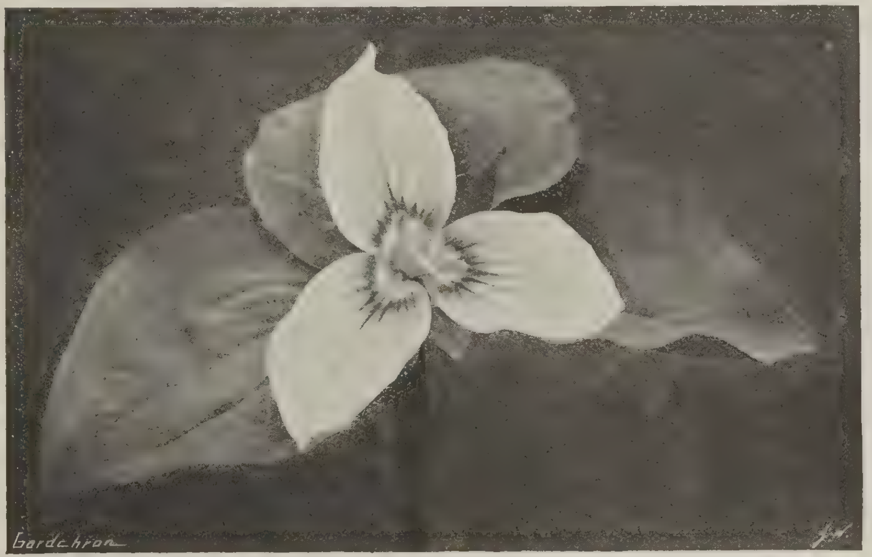

FIG. 116.—TRILLIUM UNDULATUM; R.H.S. AWARD OF MERIT, APRIL 24 (SEE PAGE 237).

Motor Cycle versus Locusts in Durban.—When a locust swarm is reported, over the wires, to be travelling down from the north, the coolie market gardeners, on the coast line above Durban, take steps to try and circumvent the foe. They prepare huge stacks of damp wood and branches, and send motor cyclists out to watch for, and give notice of, the approach of the swarm so that the fires can be set going. A motor cycle properly handled can travel fast, but its speed is trifling compared to the rate at which a locust swarm travels before a following wind. If the swarm overtakes the cyclist he is in for a bad time. No one has yet attempted to even guess at the number of the pests that go to a swarm, but millions hardly expresses it, and the rider's eyes will be blackened from contact with the mass and his head and neck sore for days after; and to add to this he will be blamed for getting left behind. The cyclist has a powerful field glass, and he watches for a little white snowball in the sky. When he can just make out this speck it is time for him to be off. The swarm will be miles away then, but miles mean nothing in this case. If he arrives in time the fires are set going, and the smoke covers the country with a pall of darkness; but this does little good as a rule, for the swarm comes on before the wind, and only a change of wind will make the locusts deviate. Millions of locusts fall victims to the smoke, but the gardens are eaten bare of any vestige of green before the swarm rises again and passes on. The motor cyclists who do this work are coolies. Accidents happen through reckless riding over bad roads and short cuts, and the riders at times come laboriously in at the rear of the swarm. *G. R.*

Peas.—Under this heading, an article by Mr. G. H. Copley on the cultivation and varieties of culinary Peas appeared in *Gard. Chron.*, March 31, p. 176. The writer states: "At the bottom of the trenches place a 6-inch layer of rich farmyard manure, afterwards filling in with soil to which farmyard manure has been added at the rate of 1 cwt. to every 12 feet of trench." Assuming the rows of Peas are placed 6 feet apart, 1 cwt. of manure to 12 feet of trench will work out at the rate of about 30 tons to the statute acre. Double this quantity will be necessary if the dwarf varieties recommended are grown, as these are grown in rows 3 feet apart. This amount of manure is in addition to the 6-inch layer of rich farmyard manure in the bottom of the trenches. Is this sound economic teaching, or is this lavish expenditure of manure on Peas justifiable? Farmyard manure is not by any means a cheap commodity, nor is it easy to obtain in quantity at the best of times. Exception may also be taken to the vague way in which the use of a fertiliser for improving the weight and quality of the Peas is advised, namely, "Superphosphate of lime is a suitable fertiliser to employ, and it may be used weekly, after the flowers have fallen and until the pods are nearly filled." *G. D.*

SOCIETIES.

NATIONAL ROSE.

(*Concluded from p.* 237.)

Decorative Classes.

The prizes for Roses in baskets were awarded as follow:—Three baskets of cut Roses: 1st, Mr. Elisha J. Hicks, with Lucille Barker (apricot-yellow), Mrs. H. Winnett and Evelyn (pink). One basket of cut Roses: 1st, Mr. A. T. Goodwin, Maidstone, with Maréchal Neil; 2, Messrs. Bees, Ltd., Chester, with Evelyn Thornton, a blush rambler, with large semi-double flowers.

In the Nurserymen's class for a decorated table, Mrs. A. R. Bide, Farnham, was first; 2nd Mrs. Tisdall, Woodford Green, and 3rd Miss Janet Prince, Longworth. All three competitors employed Rose Mme. Butterfly.

Mr. Elisha J. Hicks was first for a bowl of cut Roses, showing the variety Lady Hillingdon, decorated with Rose foliage; 2nd Mrs. Tisdall, Woodford Green, with Melody.

Amateurs' Classes

Although rather early in the year for many, it was surprising to note the creditable display made by amateurs.

E. J. Holland, Esq., Sutton, Surrey, was the only entrant in the class for a group of cut blooms. He showed first-class blooms of many different varieties, conspicuous sorts being Mrs. J. Laing, Frau Karl Druschki, Augustus Hartmann and Mrs. Foley Hobbs.

Mr. Holland was also first for 12 blooms in six varieties shown in exhibition boxes, and he also won the Silver Medal of the N.R.S. for the best bloom in the Amateurs' section with Mrs. Foley Hobbs. Amongst his other varieties, Mrs. Charles Lamplough, Mr. Edward Mawley, and William Shean were especially good; 2nd, G. A. Hammond, Esq., Burgess Hill, with excellent blooms of W. Shean, Countess of Shaftesbury and Nita Weldon.

For six blooms in four varieties, C. S. Gordon Clark, Esq., Leatherhead, was first, his outstanding blooms being of La France, Richmond, and Frau Karl Druschki; 2nd, L. P. Roberts, Esq., Westcott, Dorking, his most notable varieties being Dean Hole, Lady Plymouth, and Double Pink Killarney.

Mr. Holland excelled in the class for six blooms in one variety, with Mrs. Foley Hobbs; 2nd, G. A. Hammond, Esq., Burgess Hill, with Mrs. Amy Hammond.

The best bowl of Roses in this section was shown by Miss Ethel Jones, Abingdon; she employed the variety Richmond; 2nd, Mrs. Colston Hale, Warminster, with Golden Ophelia.

Mrs. Courtney Page had the best vase of Roses in Ophelia; 2nd, Mrs. Charlton, Yiewsley, with Mme. Butterfly.

Mr. E. J. Holland, was awarded the first prize for a basket of Roses, one variety, with William Shean, of more than usual merit; 2nd, Mr. Hammond, with Mrs. Amy Hammond, who was first in the class for a basket of Roses in variety.

Mrs. Courtney Page was successful in securing the premier award for a decorated dinner table with a most artistic display. The variety employed was Ophelia, interspersed with sprays of Acer Negundo; 2nd, Mrs. Colston Hale, Warminster, who employed two varieties, Sunburst and Mme. Butterfly, together with sprays of Adiantum; 3rd, Mrs. Oakley Fisher, Sudbury.

MIDLAND DAFFODIL.

April 18 and 19.—Owing to the early season, accompanied by very heavy rain-storms, this Society's annual exhibition, held at the Edgbaston Botanical Gardens, was not so extensive as on some previous occasions. It was, however, a good show, there being a great variety of Daffodils of first rate quality, especially among the red cupped varieties which were shown in greater numbers than usual. One of the outstanding features of the show was the new seedling Daffodils. At the annual general meeting, held on the first day of the show, Dr. N. Y. Lower was re-elected President for the year 1923. Mr. G. B. Cope and Mr. Herbert Smith were re-elected Hon. Treasurer and Hon. Secretary respectively. Subsequently a few Daffodil enthusiasts met at the Grand Hotel, Birmingham, where an informal talk on Daffodils took place, which was much appreciated. We were glad to see the Reverend Joseph Jacob, the Society's genial and energetic Chairman, who has just recovered from a very long illness, taking an active interest in the welfare of the Society he has so much at heart.

Open Classes.

It was very satisfactory to find three good exhibits (one more than last year) in the leading class, which was for thirty-six varieties, representing as far as possible the different types of Daffodils. The schedule required three flowers of each variety; 1st, Mr. W. B. Cranfield, Enfield Chase, whose collection was noteworthy for strong, clean flowers; a few of the best varieties were Helmet, Roundle, Queen of Hearts, Opera, Venetia, Brimstone, White Knight, Bedouin, Pilum, Solleret and Wavelet; 2nd, Dr. N. Y. Lower, Presteign, whose flowers were wonderfully fresh and nicely arranged, he showed Ringdove, Mrs. Debenham, Miss Willmott, Hypatia, Mandalay, Crœsus and John Peel, in good condition; 3rd, Mr. John S. Arkwright, Presteign.

Mr. Guy L. Wilson, Broughshane, Co. Antrim, was the only exhibitor of a dozen Trumpet varieties, and he was deservedly awarded the first prize for strong-stemmed, bold, clean flowers, which included Honey Boy, Moira O'Neill, Mrs. E. H. Krelage, Bulwark and White Dame. The same exhibitor excelled in the class for six yellow or lemon-coloured Trumpet varieties, which included delightful specimens of Bulwark and Golden Flag; 2nd, Mr. W. B. Cranfield, whose best flowers were The Wanderer and Cleopatra.

Mr. Cranfield was the only exhibitor in classes for, (a) *Six Bicolor Trumpets*, with Miss Clinch, Mrs. E. H. Krelage, Cumulus, White Knight, Catriona and Kotick; (b) *Six Yellow Incomparabilis*, with superb flowers of Jambart, Tace, Roundle, Leontes, Strigil and Kukri. Mr. F. Herbert Chapman, Rye, won first prize for *Six Bicolor Barrii Varieties*, with exquisite examples of Dark Eyed Susan, Kaffir, Firetail, Bonne Bouche, S. H. 20 and Debutante; 2nd, Dr. N. Y. Lower: 3rd, Mr. W. B. Cranfield.

Mr. Guy L. Wilson beat Mr. Cranfield in a class for *Six Leedsii, Division 4a.*

Mr. F. W. Mitchell, Claverdon, was awarded first prize in the corresponding class for *Six Leedsii, Division 4b*; his best flowers were Baldock, Bentham, White Lady and Berkeley.

Mr. Cranfield showed the only half-dozen *Triandrus hybrids*, which were pleasing specimens of Maid Monica, White Coral, Waterfall, Wavelet, Wistful and Venetia.

The best exhibit of *six Poeticus varieties* came from Dr. Lower, whose blooms were large, substantial, and of great purity; 2nd, Mr. F. W. Mitchell; 3rd, Mr. F. H. Chapman.

Single Blooms.

Competition was good in most of these classes. *Yellow Trumpet*: 1, Mr. F. H. Chapman, with Yukon; 2, Dr. Lower, with Royalist. *White Trumpet*: 1, Mr. F. H. Chapman, with a pleasing flower of Savonarola; 2, Mr. F. W. Mitchell, with White Knight. *Bicolor Trumpet*: 1, Mr. F. W. Mitchell, with a strong-stemmed Lewes; 2, Mr. F. H. Chapman, with B. 136/14. *Yellow Incomparabilis*: 1, Mr. F. W. Mitchell, with Basilisk; 2 Dr. Lower, with 908. *Bicolor Incomparabilis*: 1, Dr. Lower, with a delightful flower of Beauty of Radnor; 2, Mr. J. Mallender, Scrooby, Bawtry, with C. 152. *Barrii*: 1, Mr. F. H. Chapman, with a dainty specimen of Dinkie; 2, Dr. Lower, with Harpagon. *Bicolor Barrii*: 1, Mr. J. Mallender, with an extra fine bloom of Jessie; 2, Mr. B. Robinson, Spilsby, with Lady Superior. *Leedsii 4a*: 1, Mr. W. B. Cranfield, with Seashell; 2, Mr. J. Mallender, with Megan. *Leedsii 4b*: 1, Mr. W. B. Cranfield, with Puck. *Trian* *hybrid*: 1, Mr. F. H. Chapman, with 1/1, 2, Mr. W. B. Cranfield, with Venetia. *quilla hybrid*: 1, Mr. W. B. Cranfield, Solleret, intense yellow; 2, Dr. Lower, Gold Mohur. *Tazetta or Tazetta hybrid* Mr. W. A. Watts, with Xerxes. *True P* *cus*: 1, Mr. F. H. Chapman, with perfect flo of Grand Opera; 2, Mr. H. G. Hawker, bridge, with Dulcimer. *Double*: 1, Herbert Smith, with Marken.

Seedlings and New Varieties.

These are encouraged by the Midland Daf Society, and the blue riband of the Birm ham show is the Bourne Challenge Cup, w was won by Mr. F. H. Chapman, who st twelve exquisitely beautiful specimens of own raising, viz., Enamel, Corona, G Marnier, Gilt Edge, Motley, Organdie, Cava 6 L. 35, Cordon Rouge, Lustrous, Imm and 8 N. 21; 2nd Dr. Lower, who held the for two years. He showed some very da flowers, which included Royalist, Mrs. L and Redpole. In a class for *six varietie* in commerce, raised by the exhibitor, Mr. F Mitchell was awarded first prize. I similar class to the last named, Mr. W Cranfield, Mr. G. B. Cope, Albrighton. Miss Pope, Kings Norton, were plac named.

The Cartwright Challenge Cup, offered twelve varieties, in not fewer than four sions, was won by Dr. Lower, who had e lent blooms of Crucible, Beauty of Rad King Craft and Delhi; 2nd, Mr. Guy L. Wi who had grand flowers of Rosary, Hexa 6/33 and Honey Boy; 3rd, Mr. F. H. Chap

The first and second prizes in a class for seedlings, raised by the exhibitor and no commerce, open only to those who have won a first prize for seedlings (single b classes excepted), were won by Mr. W. B. C field and Mr. G. B. Cope respectively. Walter Ware Challenge Cup, offered for obvious Triandrus seedlings, was awarded to Lower, for a choice set of flowers all u numbers.

The White Daffodil Trophy offered for varieties of White Trumpet Daffodils, one of each, was won by Mr. Guy L. Wilson. showed remarkably fine flowers of White D White Emperor, 11/7, 3/25, Beersheba White Knight; 2, Mr. W. B. Cranfield, w best flowers were Miss Clinch, White Kn and Cumulus; 3, Dr. Lower.

Mr. F. W. Mitchell took the lead in a for a bowl of Daffodils.

Amateurs' Classes.

Although the classes reserved for amat were poorly contested, the two exhibits i class for twenty-four varieties made a show. Mr. Harold Lee, Wolverhampton, was placed first, had beautiful flowers of W well, Horace, Weardale Perfection, Mrs. Ro Sydenham, Admiration and Aveline; 2nd, M Robinson. The last named exhibitor awarded first prizes for (a) *six Trumpet va* *ties*, (b) *six Incomparabilis varieties*, *six Barrii varieties*, (d) *six Leedsii varie* (e) *three Tazetta or Tazetta hybrids* (f) *three Poeticus varieties.*

The silver vase offered by Messrs. Cartwr and Goodwin, for three varieties of Daffo was won by Mr. W. B. Cranfield; 2 Harold Lee; 3 Mr. B. Robinson.

Mr. E. J. Keeling, Small Heath, awarded first prize in a class for twelve va ties of Daffodils, and in another class in w the flowers had to be selected from cer cheap varieties like Emperor, Empress, Ba conspicuus, Albatross and White Lady.

The Birmingham Botanical and Horticult Society's medals were awarded as fol Classes 1-29: Silver Medal to Mr. W. Cranfield, with 88 points; Bronze Meda Dr. N. Y. Lower, with 78 points. Cla 15-29 and 30-38: Silver Medal to Dr. N. Lower, with 80 points; Bronze Medal to F. H. Chapman, with 47 points. Classes 1 and 39-46: Silver Medal to Mr. B. Robin

96 points; Bronze Medal to Dr. N. Y. R, with 40 points.

AWARDS OF MERIT.

rcissus Honey Boy.—A rich yellow pet variety, raised from Madame de Graaff, d with King Alfred. The flower is of form and high quality. Shown by Mr. L. WATSON.

rcissus Tenedos.—A giant Leedsii of a cream or pale primrose colour, which ally changes to almost white. Shown by GUY L. WILSON.

rcissus Alban.—Another handsome very cream coloured Leedsii of great purity. n by Mr. W. B. CRANFIELD.

rcissus Opera.—A bicolor Barrii variety a smallish, perfectly round, flat, pure perianth, and a rich orange crown. n by Mr. W. B. CRANFIELD.

liminary award of merit to *Narcissus stone* (see Fig. 101, p. 225). A shapely , with a striking lemon-coloured trumpet stout perianth. Shown by Mr. W. B. FIELD.

HONORARY EXHIBITS.

d Medal to Messrs. BARR AND SONS, t Garden, for an extensive collection of dils, in which Golden Sceptre, Opera, a, Fantin Latour, La Victoire, Alban and tes were conspicuous.

er-Gilt Medals were awarded to Messrs. PEARSON AND SONS, Lowdham, Notts, for dils; Mr. GUY L. WILSON, for seedling dils; Messrs. R. and G. CUTHBERT, South- for forced flowering shrubs; Messrs. RS, Wolverhampton, for a miniature rock n and hardy plants; Messrs. HEWITT AND Solihull, for Daffodils and forced flowering s.

er Medals: Mr. W. A. WATTS, St. Asaph, affodils; Messrs. CARTWRIGHT AND GOOD- Kidderminster, for Daffodils.

nze Medal, Mr. ROBERT BERKELEY, ley, Worcester, for Polyantha Primroses. R. A. SCHOOT, Hillegom, Holland, sent roplane three bunches of a new double ed Poetaz Narcissus named Cheerfulness.

FALMOUTH SPRING SHOW.

s spring flower show was held in the ngdune Gardens, Falmouth, on April 4 . The outstanding features of the com- ve classes were the Rhododendrons and ing shrubs. Owing to the mild climate of ornish Riviera it is possible to grow a variety of shrubs in the open which in parts of the country can only be success- cultivated under glass.

the best group of Rhododendron blooms xceeding 30 vases, R. BARCLAY FOX, Esq., rrick (gr. Mr. S. Smith), gained premier rs with a highly meritorious exhibit of ficent trusses. Particularly noticeable Glory of Penjerrick, Barclayi, Robert Fox, hana, Cornish Cross, R. sutchuenense, R. ytum and R. arboreum varieties. Mrs. ES HEXT, Trebah (gr. Mr. Day) was 2nd, H. HODGE, Esq., Trevarrick House, St. ll, 3rd. The flowers which gained 1st for R. BARCLAY FOX, Esq., in the class for t blooms (from outdoors) were perfect s of Lilianii, Weiri, Robert Fox, Barclayi, h Cross and R. calophytum. The first amed are all hybrids raised in the exhibi- garden by his very able gardener, Mr. S. . Mrs. CHARLES HEXT was placed 2nd, aptain TREMAYNE, Carclew (gr., Mr. Mer- 3rd. Mr. FOX also gained the 1st prize in hree classes for (1) six indoor Rhododen- blooms, (2) a single truss of an outdoor Rho- dron, with Cornish Cross, and (3) a single of an indoor Rhododendron, with a beauti- uss of R. Nuttallii.

a group of cut sprays of outdoor flower- hrubs and creepers, excluding Rhododen- (in a space of 24 square feet), the president e show, Mrs. CHARLES HEXT, was placed ith a most interesting display. Prominent ts were Prostanthera rotundifolia, Datura inea, Pittosporum eugenioides variegata, Drimys Winteri, Clematis indivisa lobata, Camellia reticulata, Banksia verticillata, Cytisus proliferus and Rhaphitamnus cyanocarpus. C. PHILLIPS, Esq., Menehay, was a close 2nd, and R. BARCLAY FOX, Esq., 3rd. For 12 distinct kinds, G. N. CARNE, Esq., Garras, was placed 1st with Brachyglottis repanda, Acacia juniperina, Gravillea sulphurea, Pittosporum Tobira, etc., R. N. ROGERS, Esq., Carwinion, 2nd, and R. BARCLAY FOX, Esq., 3rd. For six vases, G. N. CARNE, Esq., Captain TREMAYNE, and R. BARCLAY FOX, Esq., were placed in the order named. The PRESIDENT (Mrs. Charles Hext) won the premier award for six vases of Acacias, with A. dealbata, A. juniperina, A. riceana, A. armata, A. retinodes, and A. melanoxylon.

The first prize collection of Daffodils and Narcissi was contributed by F. G. LAWSON, Esq., Claremont, Truro. Notable blooms in this exhibit were Cleopatra, King Alfred, Lady Margaret Boscawen, Heroine, Bernardino, and Weardale Perfection. Of almost equal merit was the 2nd prize collection of Mr. J. C. MARTIN, Bosvigo Gardens, Truro. Prominent in this group were two double varieties, Great Leap and Mrs. E. Martin, which elsewhere in the show were given Awards of Merit by the judges.

The FALMOUTH CORPORATION (gr. Mr. R. Gill) had the best group of decorative pot plants, occupying an area of 100 square feet. The best table decoration arranged by a lady was shown by Miss MAY EARTHY, Marlborough Cottage, Falmouth. The schedule comprised 44 classes.

For a special collection of blooms of three seedling Rhododendrons, Mr. BARCLAY FOX was awarded a Gold Medal. They were Glorious (Thomsonii × J. C. W. 1911), Cornish Cross (Thomsonii × Aucklandii), and Barclayi (Glory of Penjerrick × Thomsonii.).

Numerous trade exhibits added very considerably to the interest of the show. Messrs. R. GILL AND SON, Falmouth, had a large group in which Rhododendrons and cut flowers of their noted strain of Giant Anemones predominated. Rhododendrons Ernest Gill, R. Nutallii (a lovely truss on a plant in a pot), R. calophytum, R. Augustinii, A. argenteum, Pink Pearl, R. ciliicalyx and R. arboreum seedlings were noteworthy, also Primula The Jewel (Gold Medal).

In a miscellaneous group staged by ROBERT VEITCH AND SON, Exeter, prominent in flower were Rhododendrons Keysii, R. Hodginsii, Dr. Stoecker and Princess of Orange, Camellia Mrs. Sander (pure white), Clematis indivisa lobata. Vaccinium ovatum and Pyrus purpurea (Gold Medal).

The outstanding feature of the Carnation group staged in their well-known style by ALLWOOD BROTHERS, Haywards Heath, was a large bowl of their 1923 novelty Chintz, a large blush mauve flower, the ground flaked and speckled claret (Gold Medal). Messrs. STUART LOW AND CO., Enfield, had White Pearl, Arnos Grove, Eileen Low, Lord Lambourne and British Triumph prominent in their tastefully arranged group of Carnations (Gold Medal). A Gold Medal was also awarded to Messrs. W. RUSE AND SONS, Falmouth, for a miscellaneous group of pot plants and cut flowers.

READING AND DISTRICT GARDENERS'.

MR. H. GOODYER presided over a large attendance of members at the last meeting of the Spring Session of this Association, when Mr. A. E. Barnes, Lecturer in Horticulture to the Berkshire County Council, gave an interesting address on "Fruit Growing in Berkshire." A lengthy discussion followed Mr. Barnes' remarks.

In the competitions the judges' awards were as follow:—Three Broccoli: First, Mr. J. WYNN, The Gardens, Hammonds, Checkendon; second, Mr. H. WYNN, The Gardens, Quern's House, Goring Heath. Six plants of Polyanthus: First, Mr. C. J. HOWLETT, The Yews, Earley; second, Mr. H. W. SOPP, The Lodge, St. Peter's Hill, Caversham.

In the non-competitive section a First-Class Certificate was awarded to Mr. F. TOWNSEND, The Gardens, Hillside, for splendid blooms of eight varieties of Daffodils.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, APRIL 5.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, A. T. Cussons, J. Cypher, J. Evans, J. Howes, J. Jackson, W. M. Jackson, A. Keeling, J. Lupton, D. McLeod, J. Thrower, E. W. Thompson, J. Whitham and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Brasso-Cattleya Imperiale B.-C. Cliftonii × C. Mossiae), a large flower of fine shape; *B.-C. Joan, Westonbirt var.*, one of the best yellow varieties of this hybrid; *Cattleya Irene*, a snow-white variety; *Odontioda Colinge var. Redwing*, a flower with richly coloured blotches on a white ground. From S. GRATRIX, Esq.

Odontioda Mena rubra (*Odta. Lambeauiana × Odm. eximium*), a beautiful flower with a very narrow white margin to the segments; *Odontoglossum Leander* (*parentage unknown*), the sepals and petals are heavily blotched on a blush-white ground. From P. SMITH, Esq.

Odontoglossum crispum West Point Beauty, a round form of O. crispum, having large reddish-brown blotches on each segment. The ground is pure white. From Mrs. GRATRIX.

Cymbidium Alexanderi Crompton Hall var. The sepals and petals are white with rosy-purple lines around the edge of the lip, From JAS. WHITHAM, Esq.

Dendrobium nobile Keeling's var. The sepals and petals are heavily tipped with magenta on a white ground; the lip has a dark-coloured centre. From Messrs. A. J. KEELING AND SONS.

AWARDS OF MERIT.

Cypripedium Cappa Magna var. Paschalia (*Cardinal Mercier × Nubia*); *Cyp. Caractacus var. Parasceve* (*Beryl × Earl of Tankerville*); *Cymbidium Seamew* (*I'Ansonii × Pauwelsii*). From Rev. J. CROMBLEHOLME.

Odontoglossum Rosina West Point var. (*eximium × Lady Pirrie*); *Odm. crispum Duchess of Athlone*; *Lycaste Skinneri Zeus.* From S. GRATRIX, Esq.

Odontoglossum St. Nicholas violacea (*eximium × promerens*). From Mrs. GRATRIX.

GROUPS.

The following medals were awarded for collections:—Gold Medal to S. GRATRIX, Esq., Manchester (gr. Mr. J. Howes); Silver-Gilt Medal to F. HARDY, Esq., Ashton-on-Mersey (gr. Mr. C. Branch); Silver Medals to the Rev. J. CROMBLEHOLME, Clayton-le-moors (gr. Mr. E. Marshall), JAS. WHITHAM, Esq., Crompton Hall (gr. Mr. E. Greaves), and Messrs. CYPHER AND SONS, Cheltenham.

THURSDAY, APRIL 19.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, A. Coningsby, D. A. Cowan, A. T. Cussons, J. Cypher, J. Evans, W. M. Jackson, A. Keeling, E. W. Thompson, J. Whitham and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Dendrobium Florence var. Wilps. A white flower with a rich purple eye; *Odontoglossum promerens var. albens.* An exceptionally large flower, the lip being broad and flat with a few spots. From P. SMITH, Esq.

Odontioda Earl of Chester (*parentage unknown*). The flowers are of bronzy-red colour, the segments being a shade lighter. From Mrs. GRATRIX.

Odontioda majestica (*Odta. Coronation × Odm. majesticum*). A scarlet-crimson flower with a white lip. From S. GRATRIX, Esq.

Odontoglossum Hardyanum (*parentage unknown*). A heavily blotched, reddish-brown flower with a broad white margin. From F. HARDY, Esq.

Brasso-Cattleya Apollo var. Duke of York. An exceptionally large flower of rosy-mauve colour. From J. EVANS, Esq.

Award of Merit.

Odontoglossum crispum Princess Yolanda. From Mrs. Gratrix.

Groups.

Silver Medals were awarded to J. Whitham, Esq., Crompton Hall (gr. Mr. E. Greaves), and Messrs. J. Cypher and Sons, Cheltenham, for collections.

DUTCH BULB GROWERS' OF HAARLEM.

The Dutch Bulb Growers' Society of Haarlem has made the following awards:—

First-Class Certificates.

Eranthis Tubergeni.—Soft yellow, very large flowers; the result of crossing Eranthis cilicica with E. hyemalis.

Narcissus (*Ajax*) *Dawson City.*—Uniform dark yellow, with a long trumpet, somewhat notched; wide petals well shaped.

N. (*Ajax*) *Golden Harvest.*—Wholly dark yellow.

N. (*Incomparabilis*) *Red Cross.*—Soft yellow perianth of good shape, with large, dark yellow cup, bordered with orange; very strong grower.

N. (*Poeticus*) *Actaea.*—Pure white, well-shaped perianth, with orange-red cup.

Awards of Merit.

N. (*Ajax*) *Geertruida Carelsen.* — Uniform golden-yellow, with widely open trumpet, very much notched.

N. (*Ajax*) *Golden Giant.*—Wholly clear, golden perianth; regularly formed, large trumpet, fantastically notched.

N. (*Ajax*) *Hortulanus E. Th. Witte.*—Uniform golden-yellow, widely opened trumpet.

N. (*Ajax*) *Lord Wellington.*—Wholly dark yellow, very strong grower.

N. (*Barrii*) *Eyebright.*—Pure white perianth of good form, with orange-red cup and very large.

N. (*Barrii*) *Lady Moore.*—Creamy-yellow perianth with citron-yellow cup bordered bright orange-red; widely opened.

N. (*Barrii*) *Sanguine.*—White perianth, well shaped, with uniform orange-red cup.

N. (*Barrii*) *Vara.*—Well shaped white perianth, with small, deep orange-red cup.

N. (*bicolor*) *La Vestala.*—White perianth, with very soft yellow trumpet, small flower.

N. (*Double*) *Stromboli*—Segments sulphur-yellow, stained with vivid orange-red.

N. (*Incomparabilis*) *Corinna.*—Shapely white perianth, with soft yellow cup.

N. (*Incomparabilis*) *Dorina.*—Perianth citron-yellow, well shaped; cup deep orange-red, large and frilled.

N. (*Incomparabilis*) *Orange Glow.*—Perianth soft yellow, white shaded; the strongly notched cup is bordered with orange-yellow.

N. (*Leedsii*) *Lovenest.*—White perianth, with creamy-yellow cup, border passing to light apricot; raised by Mrs. Backhouse.

N. (*Leedsii*) *Mrs. R. O. Backhouse.*—White perianth, trumpet apricot-rose.

N. (*Leedsii*) *White Whirl.*—White perianth, with small cream-yellow cup, somewhat frilled.

N. (*Poetaz*) *Xenophon.*—Citron-yellow perianth, with large, deep orange cup.

N. (*Poetaz*) (*Double*) *Cheerfulness.*—Perianth creamy-white; crown double, white with citron-yellow; strong stems carrying about five flowers each.

Certificate of the Haarlem Trial Garden.

Double Blue Hyacinth President Grant.—Dark violet-blue.

Obituary.

John W. M'Hattie.—The news of the sudden death of Mr. J. W. M'Hattie, which occurred on Sunday last, came as a great shock to his numerous friends, both in Scotland and in the South of England. Mr. M'Hattie was a native of Morayshire, and commenced his gardening career at Moy, in the gardens of the Mackintosh of Mackintosh. He subsequently served at Altyre, Raith House, Oxenford Castle, and as gardener to the Marquis of Lothian, to the Duke of Wellington at Strathfieldsaye, Berkshire, and to Sir Whittaker Wright. He was a highly successful cultivator and a thorough all-round gardener, consequently his appointment in 1901 as Superintendent of the Parks and Gardens of the City of Edinburgh caused no great surprise. Soon after his appointment, Mr. M'Hattie effected a great change in the appearance of Princes Street, Edinburgh, commencing those operations which have made the Princes Street gardens famous wherever public gardening is practised. During his long term of office he improved the city parks and gardens and superintended the laying out of many golf courses close to the City of Edinburgh, and one of the schemes he recently carried through was the construction of new golf courses on the Braid Hills; during the war period he put a considerable portion of the old golf course on this estate under food crops, but this area was recently reclaimed under the large improvement scheme carried out. The improvements at Portobello and Craigentinny were also carried out under his guidance, as were the putting greens on Bruntsfield Links. Of amiable disposition, Mr. M'Hattie was universally liked, and his views were always listened to with the greatest respect by the Parks and Open Spaces Committee of the Corporation of Edinburgh. Our readers will remember that Mr. M'Hattie was on the eve of his retirement, but had been requested by the Corporation to remain in office for another year, so that a successor could be appointed to carry on the duties and responsibilities of the office with Mr. M'Hattie for some months. Although Mr. M'Hattie was unwell a short time ago, he appeared to have quite recovered from his indisposition, and during last week was giving full attention to his duties. Shortly after rising on Sunday morning last he collapsed, and it was found that he had passed away. His only son predeceased him, but his widow remains to mourn her great loss. To her we offer the deepest sympathy of ourselves and the many readers who have known and appreciated Mr. M'Hattie over a long period of years.

THE LATE JOHN W. M'HATTIE.

TRADE NOTE.

Messrs. Carter and Howard, horticultural builders and heating engineers, have recently removed their offices and works to larger and more convenient premises at Kingston Road, Raynes Park, S.W.20. The removal has become necessary by reason of the continually increasing amount of business, and especially the erection of greenhouses. Founded at Kingston in 1909, the progress of the firm was interrupted by the war, the two partners serving abroad from November, 1914, until they were demobilised April, 1919, but the business was recommen in August of that year, and, in spite of difficulties attending the re-establishment c business of this nature at such a time, the has made such progress that the original es lishment has been found to be inadequate the volume of trade now being done by it.

ANSWERS TO CORRESPONDENTS.

A Neglected Yew Hedge: *J. R.* April or beginning of May is the best season to with an old Yew hedge that needs to be hard back. Cut where possible immedia above a branched growth, as at this p the greatest number of nodal buds are t found. The wood of the Yew is very and buds from old growths do not break freely, therefore every encouragement sh be given to the cut hedge to cause dorn buds to break. This may best be achie by hanging a band of old tiffany or sin material immediately in front of the h and keeping it moist. If this is not prac able, the hedge should at least be hea syringed every evening. When growth become active, light dressings of nitrat soda in showery weather will greatly celerate the refurnishing of the hedge.

Bamboos: *J. R.* Unsightly growths Bamboos may be removed in their entiret any time of the year without injury to plant, hence the best method is to thin old growths in the spring and afterwards move any which become weather-stained, those which impede the development of y growths.

Insect on Oak Leaves: *A. J.* The insect the Oak leaf is Tetraleurodes stanfo Bemis, of the family Aleurodidae. family is represented in Britain by the known "white fly" of Tomatos and " fly" on the Cabbage tribe. In the Bri insects the eggs are laid on the leaves, the young larvae settle down and suck juices. The larval form resembles a y scale insect, and the family has close semblance to the Coccidae or scale ins The adult insect is a fragile creature, s what resembling an aphis in several f The wings have, however, a very s venation, and are covered with a chara istic mealiness, giving rise to its nam white or snow fly. Many members o family are injurious to fruit trees, and the action of the Californian authorities have been taken owing to its possible jurious effect on economic plants. T does not, however, appear to be any re of this species ever having done any se injury, and it certainly seems unreason that such a high charge should be for work done without the consent of owner of the property. We advise the to take the matter up with his author and ask them whether they can quot instance of this insect having caused s damage, and, if not, why he should pa a useless service.

Names of Plants: *Hurstwood.* Trillium var. album.—*T. J. H.* Serapias Ling *M.T.* We have named as many of the p as possible, but some of the specimens much too small to identify correctly; 5, V num plicatum; 8, Olearia Haastii; 10, Da Cneorum; 11, Prunus japonica var. rose Euonymus japonicus var. ovatus varieg 15, Berberis Darwinii; 16, Pyrac Lelandii; 17, Cotoneaster microphylla; Berberis Aquifolium.

Tomatos Dying Off: *G. R.* The spec have been subjected to very careful exa tion, and we find the plants have be tacked by wireworms, and the damage has, in one or two instances, allowed ent to the fungus Fusarium. Use every p means of trapping the wireworms.

Communications Received.—J. O. M.—Dr. A C. W.—J. H.—Reader—J. A. M.—A. G.—C. H T. B. A—J. W. E.—Lycopersicum—A. F.—W A. T. J.—C. B. U.—S. W.

THE
ardeners' Chronicle
o. 1898.—SATURDAY, MAY 12, 1923.

CONTENTS.

tt, Mr. W. H. .. 254
ne garden, the—
ants for the moraine 257
h logs and silver-
f disease of Plums 262
nic illustration,
story of 253
an, the 259
er border, hardy—
chscholzia .. 258
rengeshoma
palmata 258
scaria 258
t garden, the
arket 261
t, the testing of new
rieties of 254
rdeners' Chronicle"
venty-five years ago 255
leners' wages .. 263
e growing — ex-
oded fallacies .. 258
nwich Park, new
perintendent at .. 254
pton Court, spring
wers at 259
Guild annual
eting and dinner 254
oth, Dr. 254
onal Auricula
ciety 254
Obituary :—
  Jordan, F. W. .. 265
  McNicol, Edwin .. 265
Orchid notes and gleanings :—
  New hybrids .. 258
  Masdevallia decorsa 258
Painters, early botanic 260
Plants, new or noteworthy :—
  Primula erythrocarpa 255
  Rhododendron phoeniceum var. Tebotan.. .. 255
Sap, the ascent of .. 253
Societies :—
  Cornwall Daffodil and Spring Flower .. 263
  Newcastle Horticultural 263
  Royal Horticultural 264
Tulips, Darwin .. 263
Vegetable garden :—
  Manurial experiments at Droitwich .. 262
Week's work, the .. 256
Wolverhampton Floral Fête 253
Wood and carpentry, old Egyptian, at Luxor 263

ILLUSTRATIONS.

tt, Mr. W. H., portrait of 254
an : fruits of the, 259 ; a tree bearing fruits of the 259
issus Opera 257
to plant, the earliest known portrait of the .. 260
ula erythrocarpa 261
dodendron phoeniceum var. Tebotan 255
ps in the formal garden at Mountain House,
epstow 263

RAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 51.5°.

UAL TEMPERATURE :—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 9, 10 a.m. : Bar. 29.95, temp. 57°. Weather—Dull.

The Ascent of Sap. In the whole domain of plant physiology, no subject is of more fascinating interest than that of the ascent sap. From the birth of the seedling to e death of the great tree which arises om it, the water stream, on which all vital tivity depends, from root to leaves, is con-uous; rapid during periods of fine grow-g weather, slow during times of cloudy es and rainy weather, but unceasing. en in winter, when vegetation rests, ody plants may still give off some ter to the air and replenish their supplies drawing a corresponding amount from e soil. It is in the case of great trees th large, leafy crowns that the phenome-n assumes its most imposing aspect; for en the quantity of water lifted from the rth and passed to the air by leaves as pour is vast, and the height to which it cends may be one hundred yards or more. is therefore not surprising that, since the rliest days when men took an interest in tural phenomena, the problem of the cent of sap should have engaged their tention. As the result of the numerous quiries which have been made into the ture of the mechanism of this hydraulic stem, the view that has gained widest ceptance is that which ascribes the lifting wer of the leaves to the osmotic pressure of eir cells. Exposed to the air, these cells, when full of water, offer little resistance to evaporation from their surfaces, and the water vapour which they lose diffuses through the leaf spaces and stomata into the air. But in losing water, the cells regain automatically the power of absorbing more from surrounding cells and neighbouring stores of water in the woody vessels. For, as water passes from these cells, their sap becomes more concentrated, and since the sap consists of substances such as sugar, which are able to exercise osmotic pressure, water will be drawn from any near source. Thus, in the course of a sunny morning, all the cells of the leaves will lose some water and in all the sap will be concentrated. In that state the leaf must wither unless its cells can replenish their supplies of water This they do by absorbing some of the water contained in the fine vessels of the veins of the leaf. So far the mechanism is fairly easy to understand, but now the question arises—what happens when water is withdrawn from the fine vessels of the veins. The leaf which we are considering may be at the top of a tree more than three hundred feet high, and therefore any difference of atmospheric pressure set up between outside air and that in the vessels will not suffice for water to rise to such a height. If the vessels which extend in unbroken connection from the leaves to the roots could be kept full of water, the suction exerted by the leaves would be sufficient to lift the water to great heights, for measurements made of the suctional force exerted by the concentrated sap of the cells of leaves have shown that it may exceed ten atmospheres. But how may the vessels be kept full of water? The root absorbs water with such avidity that a pressure may be set up which in certain cases may express itself in bleeding at cut surfaces. This pressure, however, is relatively small, and will not suffice to drive water to the leaves of the tree. Two alternative hypotheses have been put forward to account for the keeping full of the vessels. One imagines a series of cellular pumping stations in the stem, each engaged in absorbing water from regions below and passing it into the vessels. No evidence of such a regulated system of auxiliary pumping stations acting in unison with the leaves has yet been discovered. The other alternative is to believe that the continuous or well-nigh continuous water column of the vessels from leaf to root when subjected to the sucking force of the leaves, is hauled up bodily. Although this would at first sight seem a fantastic hypothesis, there is this to be said for it: that it can be demonstrated experimentally; that a water column in a tube may be subject to a considerable pull without breaking. There the matter remained until recently, when Sir J. C. Bose, already distinguished by his contributions to physiology, took it up afresh.* As the result of numerous experiments and ingenious apparatus, he has reached the astonishing conclusion that the ascent of sap is brought about by a pulsating mechanism consisting of cells which extend throughout the whole length of the plant. He holds that the cells particularly engaged in transferring water upwards one to another are those which immediately surround the central cylinder of woody tissue, and that it is through this jacket of cells that water ascends when the leaves are transpiring but little. In these circumstances, the water passes up from cell to cell and surplus water is injected from the pulsating cells into the vessels, which abut on them. Thus a reserve of water is always at hand to meet the needs of increased transpiration. When the sun shines and the temperature rises and the leaves begin to lose water rapidly, the pulsating cells reabsorb the water which they secreted into the vessels and pass it on to the tissues of the leaf. It is interesting to note than an hypothesis not dissimilar to that now put forward by Sir J. C. Bose was suggested long ago by Herbert Spencer, who imagined a kind of peristaltic contraction of the tissues of stems to account for the ascent of sap. It is not easy to understand what is the precise meaning which Sir J. C. Bose attaches to the term pulsating cells. Presumably it is that these cells have the power of decreasing in volume by ejecting or excreting water, and that others near them have the power of absorbing this water, and in turn contracting. There does not appear to be any essential difference between this view or that of pumping by osmotic pressure. The difference between current theory and that put forward by Sir J. C. Bose, would appear to be that in the former all pumping is done by the leaves, and in the latter that it is done by the cells of root, stem and leaf. To decide between these views it will be necessary to repeat the critical experiments made by Strasburger and others, which purport to show that transpiration may go on although the stem of a plant is killed, provided that the leaves remain alive. The value of Sir J. C. Bose's work is by no means confined to that of the hypothesis which he has put forward. With his well-known genius for experimentation, he has devised numerous new methods for measuring the rate of water loss and water absorption by plants, and even those who are not able to accept his hypothesis will be full of gratitude and admiration for the methods of precision which he has introduced into this branch of experimental science.

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* *The Physiology of the Ascent of Sap.* By Sir J. C. Bose. Longmans, Green and Co., 1923. Price 16s. net.

Wolverhampton Floral Fete.—The thirty-first Wolverhampton Floral Fête will be held in the West Park, on July 10, 11 and 12, when cash prizes to the value of over £1,000, in addition to silver cups, gold, silver and bronze medals, will be offered in eighty-eight classes. Several new classes have been provided for Roses, Antirrhinums, Lupins, Delphiniums, hardy garden flowers, Sweet Peas, and for cottage and allotment holders. The principal class is for a display of miscellaneous plants and flowers arranged on a space not exceeding twenty-five feet by twelve feet, and here the prizes are £40, £30, £20 and £10 respectively. Other interesting classes are those for a group of flowering plants, one kind only; a group of hardy annuals; a group of bedding plants, one kind only; and a display of cut Carnations. Sections are also provided for floral designs, for various florists' flowers, and for vegetables.

History of Botanic Illustration.—Rather more than three years ago Dr. Daydon Jackson lectured before the Linnean Society on "The History of Botanic Illustration during Four Centuries," but owing to the difficulty of illustrating coloured plates by means of lantern slides, he excluded colour work from his lecture. Subsequently many friends requested Dr. Daydon Jackson to give an account of colour work as applied to botanic plates, and to this request he acceded at the April meeting of the Society. Alluding to the methods of producing by printer's ink, representations of plants in general, he grouped the main methods into three: (1) where the design was in relief, and received the ink, which by pressure was transferred to paper, as in wood-engraving; (2) where the design was cut or bitten into plate of metal, as copper-plate engraving, etching, mezzotint, etc.; (3) where the design did not differ much in level from the stone on which it was drawn, but depended upon the antagonism of grease and water, the stone receiving either and then refusing to receive the other. Examples were then shown of early herbals with artless colouring, most of them apparently due to the work of private possessors, but with later years, as in a copy of Fuchs's *Stirpium historia*, 1542, printed at Basel, the character of the work pointed to a trained colourist, such as Plantin of Antwerp employed at a later period. During the prevalence of woodcuts during the early years of printing, copper-plate engraving began to make its way, and was employed in providing outlines for hand-colouring until the last century, when it was ousted by lithography. The method of printing from engraved plates was briefly described, and the application of mezzotint restricted to leaves and stems was pointed out, also Redouté's method of semi-stipple for coloured prints, each colour being separately applied to the plate and cleaned off, before finally heating the plate and pulling the print. A simpler method was also shown, where an ordinary engraving was printed in green ink, and other colours, as red or yellow, applied in water-colour. After explaining how artistic use of pigments varied, and always must vary, from theoretic statements as to primary colours, chromo-lithography was touched upon, and its greater permanence (if lasting colours are employed) to hand-coloured plates, some showing deterioration in less than a century, which was startling. Next, the three-colour process was touched upon, and the preparation of three (or four) half-tone blocks to print its own colour to be combined by the eye into a complete colour scheme. The weakness of the process lay in this, that it almost demanded a paper coated with baryta or china-clay, which could not be guaranteed as permanent; in addition was the temptation to use inks made from aniline dyes which were fugitive.

New Superintendent at Greenwich Park.—Mr. R. Findlay has been appointed superintendent of Greenwich Park in succession to Mr. D. Campbell. Mr. Findlay was gardener to A. K. McDouall, Esq., of Logan, Stranraer, from 1908-1919, and to the Rt. Hon. Earl of Stair, D.S.O., at Castle Kennedy, Wigtownshire, from 1919 to his present appointment.

Kew Guild Annual Meeting and Dinner.—The annual general meeting of the Kew Guild will be held at the Imperial Hotel, Russell Square, W.C.1, on Wednesday, May 30, at 6.30 p.m. The President-elect of the Guild, Mr. John Masters Hillier, will preside at the annual dinner, following the general meeting, at 7.15 p.m.

The Testing of New Varieties of Fruit.—Good progress is being made with the scheme for the testing of new varieties of fruit trees, which is being administered by a joint committee of the Ministry of Agriculture and the Royal Horticultural Society. The committee has decided that forty trees of each variety of top fruit sent in shall be tested. Up to the present time 21 varieties of Apples, two varieties of Pears, three Plums, three Cherries, eight Black Currants, five Raspberries, and three Gooseberries are under trial.

National Auricula Society (Northern Section).—This Society has published a *Jubilee Report*, 1873-1923, containing much interesting matter and several good illustrations of the Auricula. There are also several portraits of prominent growers and exhibitors of this flower, and excellent groups showing members photographed at the Botanical Gardens, Old Trafford, on Saturday, April 26, 1896, and at Middleton Free Library on May 2, 1914. The 1896 portrait is exceedingly interesting, and includes excellent portraits of such well-known men in the Auricula world as Mr. Ben Simonite, Mr. J. W. Bentley, Mr. Frank Simonite, Mr. Richard Gorton, Mr. Joe Edwards, Mr. John Lees, Mr. Thomas Lancashire, Mr. John Clements, Mr. Thomas Buckley, and Mr. Geo. Geggie. Biographical notices of the Rev. Francis Horner, Mr. Geo. Lightbody, Mr. Samuel Barlow, and Mr. Richard Hedley will be read with great interest by lovers of florists' flowers, and the notices are accompanied in each case by portraits of these Auricula pioneers. Mr. Geo. Lightbody settled down to the peaceful pursuit of flower growing after having served for many years in the Navy, including the defence of Cadiz, and he served through the American war from the beginning to the end, during which time he was twice taken a prisoner. The portrait shows him with a medal, which was bestowed for capturing a French vessel in the Mediterranean. He was for forty years a raiser of seedling Auriculas, and it is stated that he considered himself well rewarded if he obtained one good seedling in a thousand.

MR. W. H. AGGETT.

Mr. W. H. Aggett.—The recent retirement of Mr. W. H. Aggett from the office of Garden Superintendent of the Borough of Bermondsey was made the occasion of an interesting function of a semi-civic character, on Friday, the 20th ult., when his colleagues and numerous friends assembled at the invitation of the Mayor of Bermondsey, Councillor Mrs. Ada Salter, in the Council Chamber, to wish him God speed, and make several presentations. Beside the Mayor, there were present Dr. A. Salter, M.P., Aldermen and Councillors of the borough, local clergy, officials and members of the garden staff, Mr. T. Hay, superintendent of Hyde Park, and many others. The presentation included a gold-mounted coin from Mr. Elliston, the first chairman of the Gardens Department; a pair of silver Grape scissors, the gift of Mr. J. H. Hart, ex-mayor; an umbrella from the staff of the Gardens and Open Spaces Department; a salmon rod with tackle and waders from members of the old staff; silver dessert spoons, forks and tea spoons from the staff of the Town Hall, and a cheque with which to purchase two arm chairs, from various friends. We also understand the nursery trade is making a presentation to Mr. Aggett in appreciation of his efforts to popularise gardening in the Bermondsey district. Mr. Aggett has served the Bermondsey Corporation for thirty years. At the time of his appointment he had charge of three public gardens and a few street trees, but the gardens were quite unworthy of the name. During his tenure of office the gardens and open spaces have been increased from three to nine, and the staff from five to upwards of twenty. One of the principal works undertaken by Mr. Aggett has been that of street tree planting, and during the past three years no fewer than 6,000 street trees have been planted in the borough, making Bermondsey one of the most sylvan districts in the metropolitan area. Mr. Aggett commenced his gardening career at "Indio," Devonshire, the residence of Lord Chas. Bentinck, and subsequently he was appointed foreman at Delamore Gardens, Ivy Bridge, Devon, and fr
thence he went to Kew as a young garden
where, he states, he spent the happiest period
his life. He left Kew to lay out a garden f
Mr. J. H. Hopkinson at Wimbledon. E
first appointment as head gardener was to S
Herbert Jekyll, Oakdene, Guildford, and t
appointment proved a very happy one, for h
employer was a great garden enthusiast, a
spent all his leisure time amongst his flowe
This estate was, however, sold, and Mr. Agg
found employment in the public gardens
Lambeth, where he remained only three wee
when he applied for the post of gardener
the Bermondsey Council, and was successf
His new office was no easy one, for, accordi
to Mr. Aggett's own account, the three sm
parks were a disgrace, the lawns were cover
with rank weeds and very little flower garde
ing was done. But Mr. Aggett agitated f
greater facilities with the result that so f
back as twenty years, the number of bul
planted amounted to seventy thousand annua
and five thousand Dahlias were grow
Bermondsey's public gardens soon gain
notoriety for their beauty, and thousan
of people came from all parts
the metropolis in the season to enj
the floral displays. Some seventy miles
roads have also been furnished with trees, a
in this way one of the most densely crowd
districts of London was made so attractive th
the *Daily Telegraph* published a leading artic
entitled "Beautiful Bermondsey." During t
war period, Mr. Aggett arranged for the cul
vation of all vacant land in the Borough
allotments, and his Council gave eve
encouragement to the scheme, supplying manu
and water free, and seeds and plants at co
price. Mr. Aggett was untiring in his effor
in assisting the allotment holders, and cont
buted articles on gardening to the local pres
and visited and advised the allotment holde
who were scattered from London Bridge
Deptford. The Public Parks were turned in
market gardens, and Guy's and Prince
Hospitals, and six local institutions we
supplied with vegetables. In another directi
that of holding flower shows, Mr. Aggett h
done much in contributing to the brighten
of the rather drab district of Bermondsey
encouraging the planting of forecourts, wind
boxes, etc., with flowers. Mr. Aggett deserv
the thanks of all gardeners in his battle f
the recognition of a town's Public Par
Department as a separate concern from th
of, say, the engineer's department, and
success obtained by Mr. Aggett is testimo
to the value of placing it under a qualified m
who understands his business. How well he h
satisfied the Council was shown at a rece
Council meeting in their expression of appre
tion of his zeal and ability and by establish
a precedent in adding five years to his servi
to augment his pension.

Dr. Marloth.—We learn with pleasure that t
University of Stellenbosch has conferred t
honorary degree of Doctor of Science on D
Marloth, whose contributions to botani
science, particularly his *Flora of South Afri*
have gained for him a universal and well-d
served reputation.

Local Horticultural Societies. — Finch
Chrysanthemum Society, in addition to posse
ing assets of considerable value, finished t
year 1922 with a credit balance of £4 11s. 1
notwithstanding the fact that more was pa
in cash prizes at the 1922 exhibition than e
before. The membership continues to be sat
factory, and the subscriptions from honora
members, ordinary members, cottagers, and all
ment holders amounted to £64 10s. 9d. M
J. J. Ward has been re-elected Preside
and the committee have placed on record th
sincere thanks for his continued inter
and assistance. Mr. Fisher has offered
challenge bowl for competition at the n
exhibition, Mrs. R. W. Jay a challenge c
for decorative varieties, and Mr. T. Bailey
challenge cup and two miniatures in the a
teurs' classes for Japanese blooms. The ea
autumn show held on September 30 last y
was a great success, but the later exhibit

red owing to many of the exhibitors failing et their blooms to perfection on the date ne show through the season being unsuitable taking the buds or stopping the plants at usual time.—Horticultural exhibitions will eld in conjunction with the Yorkshire Agri- ıral Society's show at Sheffield on Wednes- Thursday, and Friday, July 25, 26, and the Royal Lancashire Agricultural Society's at Liverpool on August 2, 3, 4, and 6, the Kent County Agricultural Society's ex- ion at Gravesend. The last-named society rranging a horticultural exhibition for the time.

ppointments for the Ensuing Week.—Mon- May 14.—United Horticultural Benefit Provident Society's meeting; Bath eners' Society's meeting. Tuesday, May -Association of Economic Biologists' meet- Winchester Horticultural Society's meet- Thursday, May 17.—Manchester and h of England Orchid Society's meeting; and West and Southern Counties Society's ition at Swansea (5 days). Friday, May Royal Gardeners' Orphan Fund's dinner e Hotel Victoria; Eastbourne Horticultural ty's meeting. Saturday, May 19.—Wake- and North of England Tulip Society's show ays).

Gardeners' Chronicle" Seventy-five Years —*The Open Gate.* In the Easter of last I gave you some account of Mr. Masters' ery, at Canterbury, and his doings there, the good he had effected in planting the ic walks with beautiful shrubs and and filling the borders with flowers, his zeal for the diffusion of know- at the public institute; and I ven- to hope that among the leading men of own the dean and chapter would come for- and put a shoulder to the wheel. I have hopes that the seed did not fall on soil barren, and that my expectations in some quarter at least are nearer being realised when I wrote. "Time and patience work ders." This year my holiday was spent in nshire, and my first object was to see the celebrated nurseries of Lucombe and Pince of Veitch. A very cursory inspection of quite surpassed my expectations. At Mr. ch's there was a succession of new or rare ts at every other step. Everything was grow- n the most vigorous state, but what struck me was the marvellous specimens of Orchid- us plants; and I think, with reference to the of the collection, I never witnessed so many specimens—so much flower and such good tment. Pince's nursery even surpassed those Mr. Veitch's, whilst I think the Orchids at Veitch's exceeded in beauty those at the ry nursery. Mr. Veitch leaves his gates —all walk at free will throughout his nds and collections, and I understand that public has given him no reason to repent is liberality. *Dodman. Gard. Chron., May* 848.

ublications Received.—*Pathological Her- ium Notes.* No. 6. Issued by the United es Department of Agriculture, Bureau of nt Industry, Washington.—*Text-book of nology.* By J. H. Gourley, Macmillan and , Ltd., St. Martin's Street, W.C.2. Price net.—*Allotment Gardening for Profit.* E. T. Ellis. James Clarke and Co., Ltd., Fleet Street, E.C.4. Price 2s. net.—*Hand- of the Larger British Fungi.* By John nsbottom. British Museum (Natural His-), Cromwell Road, S.W.7. Price 7s. 6d. —*A Note on the Several Species of ucaria Cultivated in South Africa.* By J. Kotze. Bulletin No. 6. Forest partment of the Union of South Africa. ef Conservator of Forests, Union Build- s, Pretoria. — *The Ferns (Filicales).* l. 1. By F. O. Bower. Cambridge iversity Press, Fetter Lane, E.C.4. Price . net.—*International Review of the Science Practice of Agriculture.* Vol. 1. No. 1. ernational Institute of Agriculture, Rome.— *tes and Date Cultivation of the 'Iraq.* rt III. By V. H. W. Dowson. The Agricul- al Directorate of 'Iraq. W. Heffer and Sons, ., Cambridge.

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON PHOENICEUM VAR. TEBOTAN.*

The Japanese have a keen love for old and curious plants, and especially for dwarf plants, those with variegated foliage, or with double and otherwise anomalous flowers. In fact their gardens are largely museums filled with living plants of strange and unusual appearance. From time to time some plant or another overlooked by the many plant collectors who have visited Japan, comes to light. Such is the subject of this note. It is an old plant—how old there is no telling—and nowadays very rare in Japanese gardens.

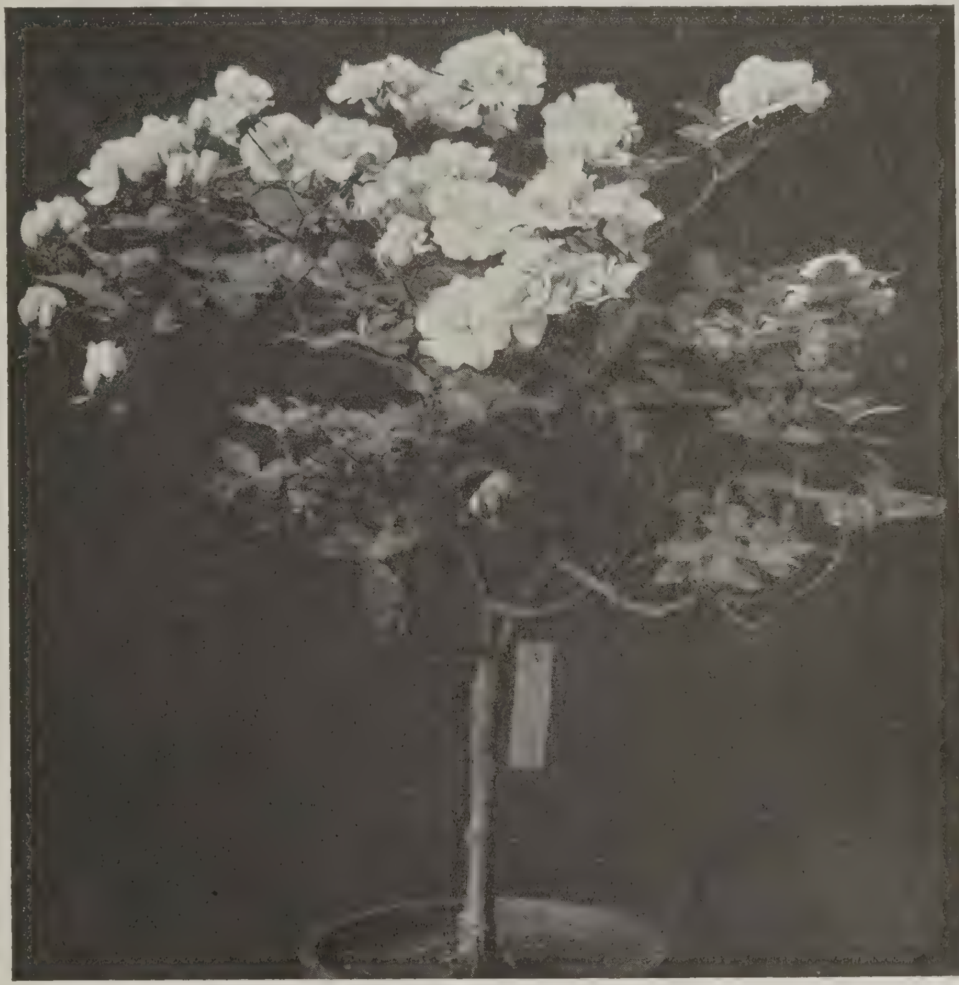

FIG. 117.—RHODODENDRON PHOENICEUM VAR. TEBOTAN.

In 1917 and 1918 I devoted much time in Japan to the study of Azaleas, wild and cultivated, and made an effort to secure all the forms not known to have been introduced into the Occident. In the work I was greatly helped by my friend, Mr. H. Suzuki, and it was through his efforts that I secured Azalea Tebotan, the Small Paeony Azalea. The plant was an old one, rough in appearance, and in indifferent health, but it was the only one obtainable. On its arrival in 1919, the Paeony Azalea was added to the famous Holm Lea collection, and the gardener in charge, Mr. Charles Sander, with skill and patience has nursed it into vigorous health, as the photograph (see Fig. 117), taken on April 3, shows. The striking thing about this Azalea is the colour of its flowers, which is the same as that of the bracts of the well-known Bougainvillaea glabra. Such a colour is quite unique among Azaleas. The flowers are borne in clusters, and the opening buds suggest those of a Noisette Rose; the fully expanded flowers show small green leaves in the centre. In habit and general appearance it is just an ordinary Indian Azalea. This interesting plant will be hardy only in the more favoured parts of the British Isles, but on account of the remarkable colour of its flowers is worthy a place in any conservatory where Azaleas are grown.

So far as I am aware, I was the first to introduce the true Paeony Azalea into Western gardens, but under the name "Tebotan," another Azalea is sold by Japanese nurserymen. This substitute, known round Tokyo and Yokohama as Fuji-manyo and round Osaka as Murasaki-botan-tsutsuji (purple Paeony Azalea), was introduced into English gardens as early as 1819, and is figured in the *Botanical Magazine*, t. 2509, under the name of "Azalea indica var. plena." Its proper name is Rhododendron mucronatum f. plenum, and it has rose-purple, fragrant flowers, quite double or only partially so, and in the centre of the flowers there may or may not be green rudimentary leaves showing. *E. H. Wilson, Arnold Arboretum, Harvard University.*

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* Wilson in Wilson and Rehder. *Monograph of Azaleas*, 64 (1921).

PRIMULA ERYTHROCARPA.

When better known, Primula erythrocarpa (Fig. 122) is likely to prove a very useful garden plant. At the present time it is reported to be flowering well in the rock garden at Edinburgh Botanic Gardens, where many Primulas from the Far East are cultivated with marked success. So far as I can ascertain, very little has been published about this species. It is a native of Bhutan, and is obviously of the denticulata section. From its rosette of rather narrow leaves arise long, slender stems bearing ball-shaped heads of pale mauve flowers. It is a rather fragile-looking species, and is certainly much more graceful than the well-known P. denticulata which it resembles. *Herbert Cowley, Tunbridge Wells.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Phaius.—Although not cultivated so extensively at the present day as their merits deserve, these highly decorative Orchids should be grown for their splendid foliage. In most of the species the foliage is so large as to necessitate considerable room for the plant, and the spikes on well-grown specimens are of considerable height; but the length of leaf and spike has been reduced by hybridising P. simulans with the tall growing species, such as P. Blumei, P. Wallichii, and P. grandifolius. The best of these hybrids are P. Cooksonii, P. Norman, and P. amabilis. Many of the P. Humblotii hybrids are also desirable plants, and these, together with the secondary hybrids, comprise a most beautiful class of Orchids, suitable for exhibiting, for beautifying the houses, and also for furnishing cut spikes for room decoration. They are also suitable for growing with a general collection of plants, where there is no pretension to grow Orchids; and especially where houses with a warm intermediate temperature are available.

Repotting Phaius.—The best time to repot these Orchids is when their flowers are over, and if they are to be kept in robust health, this should be done each year. A suitable compost consists of two parts good turfy loam to one part each of peat and leaf-mould, mixed with a liberal quantity of soft red brick, broken about the size of small Walnuts, which is helpful in keeping the soil porous, as during their season of growth these Orchids require copious supplies of water. In potting, make the compost very firm, and it is advisable to shake away as much as possible of the old material, as, being strong feeders, the plants soon exhaust the material in which they are growing. If plants are left for two seasons without repotting, they assume a sickly hue in their foliage, and the strength of the spikes and the size and substance of the flowers are considerably reduced, this being caused by the compost having become decomposed and sour. Most of these plants are of easy propagation, as they constantly break back into growth without cutting them, and in potting it is well to remove back breaks, and pot these separately in small pots; they will soon make flowering specimens. Both the species and the hybrids of Phaius require shading from strong sunshine during the summer months, as their thin leaves are easily scorched, which means the deterioration of the plants. P. simulans, which is also known as P. tuberculosus, delights in a high temperature, and should therefore be grown in the warmest house.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Salvia patens.—This rich blue-flowered Sage should be grown in every garden where good plants are desired and appreciated in the flower border. If a vote were taken it would be placed high among the first half-a-dozen blue-flowered plants used in outside beds, while it makes no undue demands in its cultivation beyond the preservation of its tuberous roots in winter. Roots treated as suggested in a previous note will have made strong shoots 2 inches to 5 inches long, and the plants will be in a suitable condition for present planting. An effective colour scheme may be secured by carpeting a bed or patch of this blue Sage with a pale Primrose-yellow Viola.

Calceolaria amplexicaulis.—This species is one of the best of the Calceolarias, its lemon-coloured flowers showing to advantage on stems about 18 inches high. A striking effect in its use may be obtained by planting it among or near to plants of Verbena venosa. It is questionable if the Gem section are so much used as they were, say, two decades ago—nevertheless they give a good account of themselves when planted in a semi-shady position, and not allowed to suffer for want of moisture. These Slipper-flowers may be put in the outside beds and borders now.

Canna.—These noble-leaved plants may be planted at this date. Make the ground moderately rich, and arrange for some slight protection from rough winds by planting where existing shrubs or trees will answer this purpose. Cannas, however, planted too near trees or in glades, as they sometimes are, have a tendency to make an excessive amount of foliage—albeit this is greatly to be admired—whereas when planted in beds in the open the growth is shorter and the flowering more free.

Supporting Plants.—Some of the more forward of border plants will need the support of stakes to prevent the shoots breaking or becoming deformed. Staking should be adequate and calculated to suit the particular growth of a plant. Do not bunch a plant to one stake where three or four may be necessary, also avoid the besom-like method of tying plants. If available bushy Pea-sticks make excellent supports for many types of plants, preserving their natural appearance and rendering much tying unnecessary.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Cucumbers.—Cucumber plants raised early are growing vigorously and fruiting freely. The stopping and tying of the shoots should receive prompt attention. Allow the shoots ample space for full leaf development, and remove all superfluous growths. Guard against over-cropping, thinning the number of fruits where necessary. Light top dressings of soil should be applied to the roots according to requirements; weak stimulants given at frequent intervals will materially assist in keeping the plants healthy and vigorous. Provided plenty of atmospheric moisture is maintained, very little ventilation will be required. During bright weather lightly shade the plants to prevent flagging of the foliage.

Cucumbers in Frames.—Seed may now be sown to raise plants for growing in cool pits or frames. Where available, fermenting material should be prepared, and a hotbed made in readiness for the young plants; the pits or frames should also be cleared and thoroughly cleansed in advance. The method I favour is to make the hotbed, place a ridge of suitable soil on the bed at the back part of the pit and cover the remainder of the hotbed with a thin layer of soil. The plants should be inserted and treated in the same manner as advised for those growing in houses.

The Orchard House.—Trees which have set their fruits freely in the orchard house will require early attention in thinning of the fruits, which should be done at short intervals until the crop is reduced to the required number. This remark applies equally to stone fruits and Pears. Apples are later in developing, and the final thinning of these fruits should be deferred. Growths arising from the spurs should be pinched back to four or five leaves, reserving in their entirety the leading shoots of the main branches on undeveloped trees. Watering will now require more attention, and on no account should a tree be allowed to approach dryness at the roots. Soot water and weak liquid manure may be given occasionally with good results, and an occasional application of Peruvian guano will prove beneficial. When the trees have passed out of flower the syringe should be used freely and forcibly to keep the foliage free of insect pests; if insects are detected use a suitable insecticide. Air should be afforded freely when the weather permits. With the advent of warmer nights damp the paths and other bare spaces late in the evening to create a cool, moist atmosphere.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH,
Carlton Park, Market Harborough, Leicestershi

Brussels Sprouts.—The earliest plants
Brussels Sprouts that were pricked out in fra
or in a sheltered place have made sturdy sp
mens and may be put out in their perman
quarters, which should be an open part of
garden, and yet not too exposed to high wi
At Carlton Park we plant Brussels Sprouts
rows 5 feet apart, and grow second e
Potatos between the rows. When the Po
tubers are dug in the early autumn, the st
of the Brussels Sprouts are earthed up to k
them upright Plant them with a trowel at 2
apart, and make the roots firm in the soil. W
the work of planting is finished, give the roo
good watering. When the plants are abou
foot high draw a little soil to them with
hoe, and also aerate the soil about them o
sionally by stirring it with the Dutch hoe.

Vegetable Marrows.—As fast as the frames
hotbeds are cleared of crops fill them with yo
Marrow plants, placing one in the centre
each light. Small and quickly maturing va
ties may be grown entirely in the frames, pi
ing out the points of the growths about e
fourth leaf, and allowing them plenty of
Keep the roots well watered and fed
liquid manure, and the plants will produce
early crop, which will be much apprecia
The larger varieties, such as Moore's Cream
Long Green may also be planted in frame
under handlights, and as soon as dange
frost is over remove the frames and a
the Marrows to grow freely as they
Vegetable Marrows should never be allowed
become very large before they are cut, u
required for some special purpose.

Tomatos.—Plants in bearing should be
liberally and top-dressed with rich soil.
plants should be lightly tapped every mor
to distribute the pollen. Spring-sown pl
should be placed in their fruiting pots or b
as the case may be. Use a good, rough c
post consisting of two parts loam, one part
mould, and one part manure from a spent
bed, with a good sprinkling of wood ash. P
the plants low down in the pots, leaving al
half the pot space to allow for subsequent
dressings. Water the roots sufficiently, but
not apply any fertiliser or other manurial sti
lant until the plants have set two or t
trusses of fruit.

Potatos.—Keep a watchful eye on the Po
patch, and where the tops are seen to
coming through the soil draw a little e
over them to protect them from night fr
Earth the rows where the plants are forw
enough for this to be done. Continue to p
late varieties, and rub off all the shoots ex
those at the top of the tuber. Those in
store should be examined on wet days,
shoots rubbed off, and the tubers moved
allow the air to reach them.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Bo
Gardens, Kew.

Exacum macranthum.—Seedlings raised f
seeds sown last autumn are, under the influ
of increased sunlight, growing freely,
plants in small 60-sized pots should
ready for transferring to 48-sized pots in w
they will flower. Over-potting of this beaut
plant must be guarded against, and very c
ful watering is also essential to success
it. Employ a compost consisting of good me
loam to which one-third its bulk of good fib
peat and clean, coarse sand should be ad
Plants raised from seed sown early in the
Year should be repotted as they require
creased root-room. During the plant's se
of active growth a stove temperature of
to 65° is necessary, but when in flower a lo
temperature is suitable.

Coleus thyrsoideus.—This Coleus is one of
most beautiful of blue-flowering greenh
plants for the winter decoration of the

uses, and a stock may be raised either from eds or cuttings. If large specimens are re- ired, the plants may be propagated at this ason, while small plants suitable for the coration of the plant stages may be propa- ted later. Very fine examples may be pro- ced from plants rooted late last autumn and pt over the winter in small pots. Such plants e now growing freely, and should be potted as they require more rooting space. Cut- ngs inserted at this season root readily in warm case. In the younger stages this plant ould be pinched several times, and is best own in an intermediate temperature, with ghtly cooler conditions as the season ad- nces. It is by no means an easy plant to ltivate successfully, and seems to resent dden changes of temperature.

Primula sinensis.—In gardens where large antities of Chinese Primulas are grown, and ccessional batches required, a pinch of seed ould be sown now. For decorative purposes d freedom of flowering the stellata varieties e to be preferred to the large-flowered type r their elegant habit. The seed should be wn in a light, rich compost, standing the pots an intermediate temperature. The seed pots ould be kept for some time as the seed ger- nates at irregular intervals. The young ants should be grown on in a light, rich com- st mixed with a little old mortar rubble. ring the summer the plants should be grown low pits, or cold frames. Very fine speci- ens may be obtained by growing on plants for second year; plants for this purpose are best lected from those raised from a late sowing the previous year. Although any of the merous varieties may be used for this pur- se I find that the stellata varieties give the st results.

Primula kewensis.—Seeds of this useful variety ay be sown towards the end of the present nth. The seedlings vary somewhat, a propor- n of the plants showing the mealy-leaf aracter of the parent P. verticillata. The iginal type of P. kewensis does not, as a rule, oduce seed, and should be propagated by divi- n. It is scarce in cultivation, which is to regretted, as it is a much more elegant ant than the seed-producing form.

HARDY FRUIT GARDEN.

A. J. HARTLESS, Gardener to Major J. F. HARRISON,
King's Walden Bury, Hitchin, Hertfordshire.

Strawberries.—It is not too late to give a essing of superphosphate to Strawberries, pecially as the ground is moist. Two ounces per uare yard of surface is a moderate dressing. his fertiliser may be mixed with sulphate of nmonia (1-2 oz.). After applying artificial anure of this nature the ground should be ed, and, if necessary, the stimulants watered to the soil. Fish guano is very suitable r Strawberries if the soil is deficient in organic anure.

Raspberries.—All suckers not required should removed from the Raspberry rows, and the il should be kept hoed to obtain a fine tilth a mulch of manure has not been applied. his should also be done in the case of Black- rries, Wineberries, Loganberries, and similar uits.

Gooseberries and Currants.—The fruits on ooseberry bushes may require thinning, and rly varieties thus treated may advance a crop rlier for cooking purposes. Give attention the stopping of lateral shoots both on Goose- erries and Red Currants. Pinch them to the cond or third leaf. It is a mistake to leave em until the stems harden and a knife has be used. Reserve all shoots useful for the evelopment of the bush; any of undue length ay be stopped at a later period. Much may e done to rejuvenate the older bushes by ncouraging the development of younger shoots ith the view to cutting away the older and seless wood the following winter. Remove pro- ctive material, as previously advised, as soon s the blossom of fruit trees is set, to enable he foliage to develop properly. Keep the soil bout all trees free from weeds, which are lways liable to harbour insect pests.

THE ALPINE GARDEN.

PLANTS FOR THE MORAINE.

THE moraine differs from the rock garden in its construction only, and practically every rock garden may be made to include a moraine. In forming a moraine in the garden select a position for preference facing south-west. Excavate the soil to the depth of 1½ foot to 2 feet to the dimensions desired, and place at the bottom six inches of rough, peaty turves, and on these small limestone or granite chips, small portions of bricks or well washed gravel, mixed with one part of sandy loam and sifted leaf-mould. So long as the bed is made thoroughly porous to allow of free drainage of moisture, there is little fear of failure. It is also advisable to have stepping stones, to be better able to attend to the plants when necessary, also to prevent trampling on other plants during garden operations. A moraine constructed in this manner will retain moisture for a long time, but in the event of long periods of drought during the spring and summer, water should be given once or twice a week, when the plants will succeed perfectly.

Avoid so far as possible all plants of vigorous or rampant growth, reserving for the moraine those of the rarer species.

The following plants are suitable for growing in a moraine: Androsaces, such as A. carnea, rose; A. Chumbyi, brilliant rosy-red; A. lanuginosa, rich rose; A. pyrenaica, white; A. sarmentosa, rose; A. (syn. Douglasia) vitaliana, golden yellow; Armeria caespitosa, pink; Asperula suberosa, pink; Campanulas, such as C. Bellardii Miranda, one of the late Mr. R. Farrer's introductions, with flowers of a silvery blue; C. cochlearifolia, soft blue; C. Allionii, C. acutangula (syn. arvatica), delicate violet: C. pulla, rich purple (the forms of C. pusilla are very pretty, but are strong growers). C. Tommasiniana and C. Warley White. A number of Dianthuses are suitable, including D. alpinus, D. Fosteri, D. neglectus, D. microlepsis, and D tymphresteus.

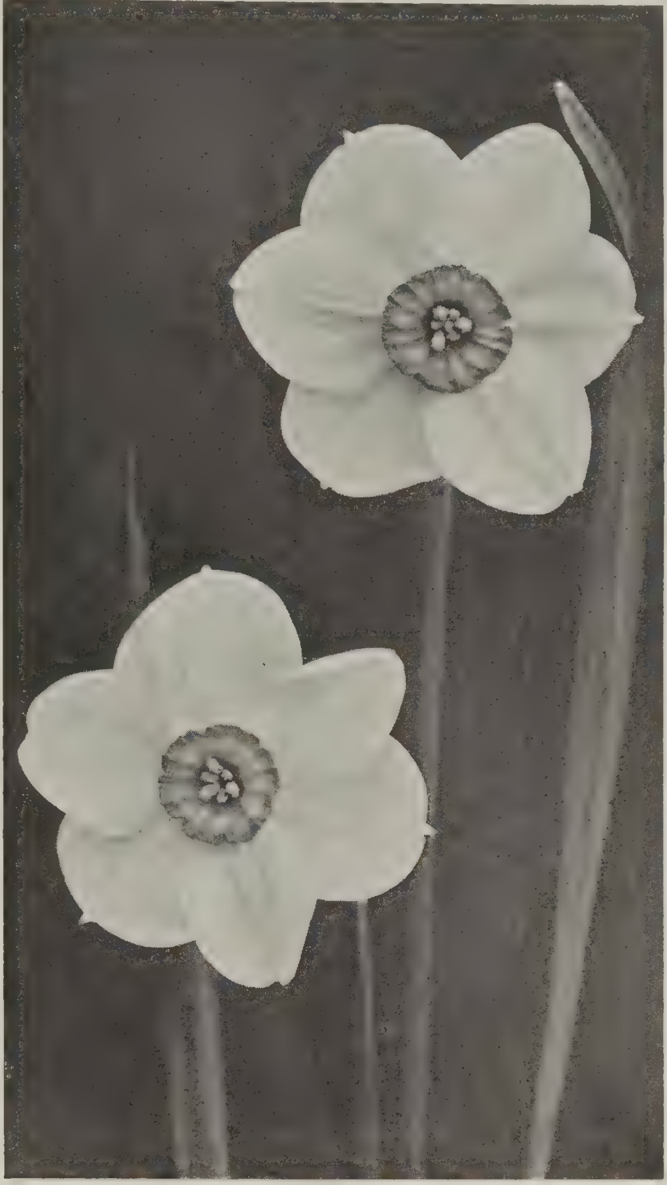

FIG. 118.—NARCISSUS OPERA: R.H.S. AWARD OF MERIT, APRIL 24 (SEE P. 238)

Drabas are well worthy of inclusion, such as D. Aizcon, D. diversifolia, D. Kotschiyi, and D. bruniaefolia. Other plants that may be employed are Dryas octopetala (the Mountain Avens), a charming plant with large white flowers; Saxifragas such as S. caesia, forms of S. burseriana, S. Boydii, S. Boydii alba, S. Dr. Ramsay, S. Elizabethae, S. apiculata, S. apiculata alba, S. retusa, S. Irvingii, and S. valdensis.

The plants I have enumerated are amongst the best for the purpose, but there are very many others that are suitable. Although spring is the most suitable time for planting these charming floral gems of the alpine regions, a moraine may be formed and planted almost any time, as the plants are obtainable from nurserymen in pots. When the planting is finished, cover the surface with chips of granite or limestone. *W Logan.*

ORCHID NOTES AND GLEANINGS.

MASDEVALLIA DEORSA.

It is interesting to note that this very remarkable species is flourishing in Sir Jeremiah Colman's gardens; a specimen was included in his group of Orchids at the Ghent Quinquennial Exhibition.

B. J. Beckton, Esq., also showed a specimen at the meeting of the Manchester and North of England Orchid Society on March 1 last.

The species was collected by the late Mr. F. C. Lehmann, in Colombia, and a few plants were imported alive in 1894, one of which flowered with the late Sir Trevor Lawrence, and another at Glasnevin, the latter plant gaining an Award of Merit at the Royal Horticultural Society's meeting on July 17, 1909. A remarkable feature of this species is that it grows downwards, consequently it is best accommodated in a suspended raft, shallow basket or pan.

M. deorsa is of the Coriacea section, but it differs from the others in its pendulous habit, the flower scape also drooping like the foliage. The leaves are eight to twelve inches in length, thick in texture, greyish green above and generally purplish on the under side. The scapes are short and bear showy flowers of wax-like substance, coloured yellowish blotched with dark purple. The short perianth tube has spreading sepals, and the small petals are greenish and the papillose lip deep purple. The structure of the plant with its long, heavy leaves on slender stalks explains why it persists in growing head downwards in like manner to Cattleya citrina, whose heavy pendulous flowers render the drooping habit desirable, although the short, stout pseudo-bulbs seem quite capable of growing erect, but instinctively the growths lean forward.

The declinate habit of many tropical Orchids is essential to ensure that excessive moisture does not lodge in the centre of the plants and cause loss of the tender, young leaves. Most of the Phalaenopsis are found in that position in their native habitats and under cultivation thrive better and are less liable to damage when they are tilted forward.

In Masdevallia deorsa the declinate habit is so fixed that the first specimen at Burford in 1895 had the leaves tied upright, yet the young growth turned downwards into the compost and the leaf decayed. The position of the plant was afterwards reversed, and it grew satisfactorily.

Masdevallia deorsa is illustrated in *Bot. Mag.* tab. 7766, and in *Gard. Chron.*, December 1, 1900, Fig. 121, the latter illustration from a drawing by the late Mr. Worthington G. Smith, of Sir Trevor Lawrence's plant.

HARDY FLOWER BORDER.

VISCARIA.

This hardy annual is a member of the Pink family, and is a most beautiful and graceful plant. The seeds may be sown at this date in a sunny situation and just covered lightly with fine soil. The seedlings should be thinned as soon as practicable to 6 inches or 7 inches apart, and will then have room to grow into strong plants a foot or so in height.

The colours of the flowers vary and include blue and crimson shades; there is also a good white Viscaria. The flower is somewhat similar to that of the Flax and the plant deserves more prominence in our borders than it apparently receives, as it is not at all fastidious in its requirements.

ESCHSCHOLZIA.

This brilliantly coloured hardy annual is generally known by the more euphonious name of Californian Poppy. It will thrive almost anywhere, but seems to succeed best in the full sun. The seedlings should be well thinned, for they need plenty of room to develop their ornamental foliage. The blooms are very useful for cutting provided they are cut before they have expanded. They may be placed in water and exposed to the sun to fully expand. A row of Eschscholzia flowers opened in the sunlight presents a gorgeous spectacle, and I had more pleasure from these plants last year than from any other annual. The flowers may now be obtained in many rich shades and variations of crimson, yellow, blush, and white. A packet of mixed seed will prove quite satisfactory, and the seed should be sown any time now in a light but not too rich soil. *T. D. T.*

KIRENGESHOMA PALMATA.

For a cool, semi-shady spot where the soil is deep and good, this comparatively new Japanese plant is an admirable subject. In manner of growth and broad, palmate leaves it suggests a general resemblance to some herbaceous Spiraea, but the smooth ebony stems bear the handsome foliage to a height of some 3 feet. The flowers, also, are curiously unique. In the later summer these appear in loose clusters at the ends of the growths, and the long, creamy-yellow rays, which never open wide, but keep their shuttlecock shape to the end, afford a bold contrast to the dark and glossy stems. A succession of flowers is usually maintained until the late autumn, when the fine leafage turns a brilliant yellow, and the plant dies down to the base. The new growths usually appear in April or earlier, and slugs will go far for these. Once established, K. palmata is best left undisturbed. *A. T. J.*

NEW HYBRIDS

(*Continued from March 24, 1923, page 160*).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya St. Andre	B. nodosa × C. Dowiana aurea	Sanders.
Brasso-Laelio-Cattleya Boadicea	C. Mendelii × B.-L.-C Queen of the Belgians	Flory & Black.
Brasso-Laelio-Cattleya Euclid	B.-L. Helen × L.-C. Luminosa	J. P. Mossman, Esq, U.S.A.
Cattleya Dawn	Mendelii × intertexta Juliettae	Sanders.
Cymbidium Canary	Butterfly × Pauwelsii	Sanders.
Cymbidium Lady Paget	insigne × Butterfly	Gen. Sir R. Paget.
Cymbidium Madeleine	insigne × Pauwelsii	Mons. Ch. Maron.
Cypripedium Cardemona	Carola × Desdemona	P. Smith, Esq.
Cypripedium Edwin S. Webster	Aisne × Gaston Bultel	Stuart Low.
Cypripedium Shamus	Earl Tankerville × keighleyense	Mrs. Bruce and Miss Wrigley
Cypripedium Villorma	villosum × Maudiae	Mrs. Bruce and Miss Wrigley
Cypripedium Windsor	Eurybiades × Chardwar	S. Gratrix, Esq.
Laelio-Cattleya Beauty	C. Whitei × L.-C. Britannia alba	Sanders.
Laelio-Cattleya Dowibel	L.-C. Mabel × C. Dowiana	J. P. Mossman, Esq., U.S.A.
Laelio-Cattleya Dolomite	Domos × Aphrodite	Stuart Low.
Laelio-Cattleya Elaine	L.-C. Hadrian × C. Mendelii	McBean.
Laelio-Cattleya Enidonia	C. Enid × L.-C. Clonia	J. P. Mossman, Esq., U.S.A.
Laelio-Cattleya Gwendolen Leach	L.-C. Capulet × L.-C. Merciana	F. J. Hanbury, Esq.
Laelio-Cattleya Nancie Gamble	L.-C. Hyeana × C. Trianae	F. J. Hanbury, Esq.
Laelio-Cattleya Narcissus	G. S. Ball × Mercia	Flory & Black.
Laelio-Cattleya Nora	C. Nortia × L.-C. Dominiana	Cowan.
Miltonia Westminster	Memoria Baron Schröder × vexillaria G. D. Owen	Sanders.
Odontioda Brilliant	Joan × Chantecler	McBean.
Odontioda Daffodil M. Mackenzie	Odm. crispum × Oda. Leeana	F. J. Hanbury, Esq.
Odontioda Deltilia	Odm. Delta × Oda. Cecilia	C. J. Lucas, Esq.
Odontioda Ilona	Oda. Cocksoniae × Odm. crispo-Harryanum	R. G. Thwaites, Esq.
Odontoglossum Alethea	amabile Electro × King Arthur	McBean.
Odontoglossum Beau Brummel	Maillardeanum × crispum	H. T. Pitt, Esq.
Odontoglossum Muriel	Dido × illustrissimum	Cowan.
Odontoglossum Orosum	Orosius × crispum	R. Gerrish, Esq.
Rolfeara Queen Nefertiti	S.-C. Thwaitesii × B.-C. Ilene	Mrs. Bruce and Miss Wrigley

GRAPE GROWING—EXPLODED FALLACIES.

It is curious that many mishaps have bee attributed to wrong causes in calendars au guide books, apparently without any questio as to whether the stereotyped opinions woul bear investigation. It is many years since showed the absurdity of some of these wron conclusions, but they still hold their ground

One of the most noticeable of these is regard to what is called "scalding" of Grapes It is attributed to the sun acting on the berrie while the dew is on them in the early mornin when ventilation has been too long delayed Although tardy ventilation is responsible fo many evils, this is not one of them. Scaldin occurs during the stoning period, which commences 4 to 5 weeks (more or less, accordin to the different varieties and the average temperature afforded) from the commencement o flowering. During this period it is well know that there is no perceptible enlargement of th berry, although its diameter up to this time ha been expanding at an average rate of 1-16 in every 48 hours. The skin will not expand at a for nearly four weeks, but everybody knows tha water when heated will increase in volume. Th grape berry is largely composed of water, probably to the extent of 90 per cent., and I wou ask, what is to prevent this water expandin when the temperature rises from 50° to 90° Do not imagine there is any vacant space t accommodate this increased volume; our tex books tell us that unless the cells are tensel filled, growth cannot proceed. We know wha would happen to a tightly corked and completely filled glass bottle when the temperatu of the water was raised from 50° to 90°! think, therefore, I have made it plain that th mishap to the berry is a rupture and the scalde appearance shows afterwards. It does not tak place in the early morning, but during th hottest part of the day, and if the temperatu is kept somewhere between 50° and 80°, it wi not occur at all

It is difficult to keep to this maximum whe the outside temperature approaches 90°, but b ventilating abundantly and early, damping wa and floor surfaces frequently during the midd of the day, not only inside the house but outsid near open doors and ventilators, and shadin temporarily, it is possible when a day of suc tropical weather occurs to create a lower temperature than that prevailing outside. Whe there is the slightest sign of the second swellin or of colouring, all danger is past.

I once had occasion to go away whi painters were at work on the roof of a viner and it was at the critical time of stonin Ample ventilation was provided on the opposi side. I was delayed, and on returning found th men shifted from one side to the other. The had closed the ventilators to accommodate th ladders and had neglected to open those on th opposite side. The consequence was tha almost every bunch in the house was injured.

I have known the so-called scalding tak place at night when the pipes had been mad very hot to create sulphur fumes for the destruction of mildew. Certain growers might imagi that the sulphur was the cause of the misha but I have proved that it does not take pla excepting during stoning time, although something else may happen if this sort of fumigati is done while the berries are quite young.

There is sometimes a case of real scaldi with white Muscat Grapes when they are ripening. If they have been grown under the sha of leaves, and are suddenly exposed to fier sunlight by tying back those leaves, they a liable to become very much disfigured. Whe the fruit has been grown in the light all th time this disfigurement is not likely to happe It is totally different from the mishap whi occurs at stoning time.

The so-called scalding or scorching of leav and shoots is really a chill produced by rap evaporation. When the sun shines sudde on a closed house, moisture is rapidly condens on all cold surfaces, including the shoots a leaves of plants, which take much longer to come warmed than does the atmosphere. If the house is kept closed, as a Cucumber house frequently is, the so-called scalding is not likely to take place, though the sun temperature may rise to 120° or more, but if ventilation is given at the top after it has risen 10°, such unskilful reatment will probably leave its marks.

Rust on Grapes is caused in the same way, and generally occurs when the berries shoot their caps off and are consequently very tender. Old writers tell us that the mishap is caused by rubbing the berries with the hair of one's head during thinning (what an advantage the baldhead has!), and this tale is still told by modern writers, who do not take the trouble to observe he rusted berries where neither hair nor hand could have possibly touched them.

I repeat, ventilate early on a bright morning before any rise of temperature has taken place, but remember that rust may also be produced by sulphur or nicotine fumes while the berries are quite young. *Wm. Taylor.*

THE DURIAN.

The Durian grows on a large and lofty forest ree (Durio zibethinus) somewhat resembling an Elm in its general character, but with a more smooth and scaly bark (Fig. 119). The ruit is round, or slightly oval, about the size f a large Coconut, of a green colour, and overed all over with stout spines (Fig. 120), he bases of which touch each other and are onsequently somewhat hexagonal, while the points are very strong and sharp. It is so ompletely armed that if the stalk is broken off it is a difficult matter to lift one from the round.

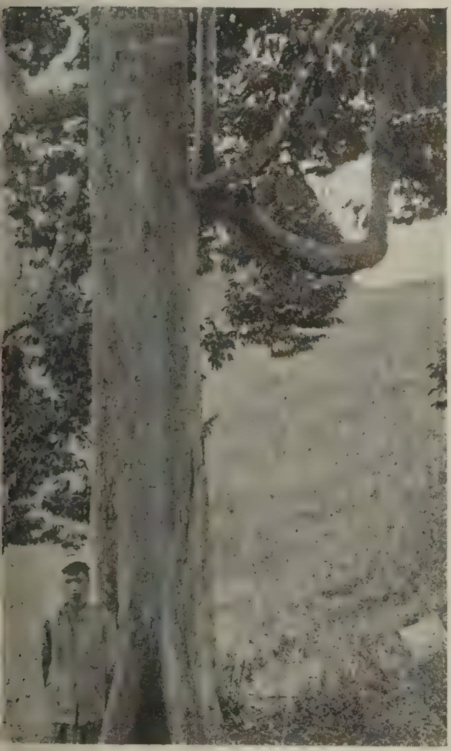

FIG. 119.—A DURIAN TREE BEARING FRUIT.

The outer rind is so thick and tough that from whatever height it may fall it is never broken. From the base to the apex five very aint lines may be traced, over which the spines arch a little. These are the sutures of the carpels, and show where the fruit may be divided with a heavy knife and a strong hand.

The five cells are satiny white within, and re each filled with an oval mass of creamoloured pulp, imbedded in which are two or hree seeds about the size of Chestnuts. This pulp is the eatable part, and its consistence and flavour are indescribable: a rich, butter-like custard, highly flavoured with Almonds, gives the best general idea of it, but intermingled with it come wafts of flavour that call to mind cream cheese, Onion sauce, brown sherry and other incongruities. It is neither acid, sweet, nor juicy, yet one feels the want of none of these qualities, for it is perfect as it is. In fact, to eat Durians is a sensation worth the voyage to the East to experience. When the fruit is ripe it falls to the ground, and the only way to eat Durians in perfection is to get them as they fall, and the smell is then less overpowering.

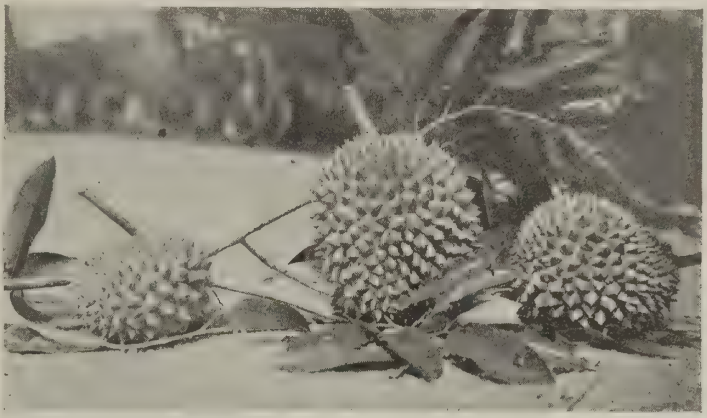

FIG 120.—FRUITS OF THE DURIAN, DURIO ZIBETHINUS.

The Durian, however, is sometimes dangerous. When the fruit begins to ripen it falls daily almost hourly, and accidents not infrequently happen to persons walking or working under the trees. When a Durian strikes a man in its fall, it produces a dreadful wound, the strong spines tearing open the flesh, while the blow itself is heavy, but from this very circumstance death rarely ensues, the copious effusion of blood preventing the inflammation which might otherwise take place.

The area in which the Durian is indigenous has not been determined with certainty. The species is generally believed to be a native of Borneo, and other islands of the Malay Archipelago.

The region in which the tree is commonly found extends from the Northern Federated Malay States through the Dutch East Indies, and up into the Philippines so far as Mindanao. A single tree is known to have fruited in Hawaii, and another in Dominico, British West Indies. The species is seen occasionally in Ceylon and other tropical countries, but outside of the Malayan region its cultivation is limited mainly to botanic gardens. *C. B. Ussher.*

SPRING FLOWERS AT HAMPTON COURT.

A lovely May day with brilliant sunshine and blue sky showed the flowers at Hampton Court in perfection on Friday, the 4th inst. Tulips have been planted plentifully for this display, and are dotted in the large beds about one foot apart, over a carpet of dwarfer subjects. This is an excellent arrangement, if the colours are chosen carefully, as it gives a distinct change in the whole garden when the Tulips commence to flower; one of the best arrangements is a bed of Myosotis Royal Blue dotted with Tulip Loveliness. The dark rose colour of the Tulips and the blue of the Forget-me-not associate well. Another bed which attracted many visitors had a groundwork of Primula malacoides with the black Tulip La Noire above it. The latter arrangement would only be possible in private gardens, where there are ample glass facilities, as the Primula needs protection during winter, and is planted out-of-doors in the spring. A few thousand plants of Primula malacoides, however, present no difficulties to the garden staff at Hampton Court. Another bed of this Primula was associated with the dark rose Tulip Pride of Haarlem, and this bed was even more appreciated by some people. Paler colours were provided with double white Arabis planted with Tulip Margaret, also giant pink Daisies with Tulip Rev. H. Ewbank, but this type of Daisy cannot compare with the variety Alice or the darker variety known as Joyce, both of which are far more refined in appearance.

Probably no one would object to the beds of Aubrietia Dr. Mules and single white Tulips Le Candeur. Aubrietias are more difficult to cultivate than Polyanthuses, Myosotis and others, but the result amply compensates for the care and attention required. The plants provided a wide range of colour from the pink of A. Moerheimii to the dark crimson of A. Fire King, also the dark blue A. Lavender to the dark purple of A. Hendersonii. Many other varieties equally good might be mentioned. None of the Aubrietias come true from seed, and that is probably the reason why the fine crimson variety A. Leichtlinii is so seldom seen; as first sent from Baden Baden by Max Leichtlin it is still one of the best sorts.

Some of the beds contained Wallflowers solely, and these were very good, especially Eastern Queen, pink, and Fire King, orange.

An old favourite that was not flowering well was Anemone fulgens on the long border. This plant is not suitable for late planting or transplanting; but if treated according to its requirements it is a most successful subject for a spring display. The small sunk garden near the vinery containing the celebrated Vine was in fine condition with similar plants to those named above, and enough Stocks to give a waft of delicious perfume. Jasminum primulinum was flowering well on a wall.

The double Cherries in the shrubbery were almost over, also some good plants of Magnolia Soulangeana. The shrubs in this part of the garden have now recovered from their severe pruning of a few years ago, and the effect is much improved. Mention may be made of the wilderness with Bluebells and white Bells, interspersed with Narcissus poeticus. In some parts this wild garden is exceedingly pretty, in others much choked by the tiresome woodland weed Chaerophyllum sylvestre, which is very difficult to eradicate when it gets possession of such a large area of ground. *W. H. Divers.*

The Roots of Fruit Trees.—The distance apart at which fruit trees should be planted depends on many factors—kind and variety, soil, etc.—but among these factors the natural length of roots must be included. Observations made by Mr. Peren* at Long Ashton indicate that roots of Apples may have a lateral extension of so much as 25 feet. Wide planting, with the not too belated removal of "fillers," would, in the light of the facts recorded by Mr. Peren, appear to be good practice.

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* *Journal of Pomology and Horticultural Science,* III., 2, April, 1923.

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EARLY BOTANIC PAINTERS.

No. 5.—Painting in Relation to the Printed Book.

THOSE interested in the history of book-production in general, or of the sixteenth century herbals in particular, should not neglect an opportunity to visit the Plantin-Moretus Museum in Antwerp. There, in the mind's eye, one may see revivified the producers of the herbals of Dodoens and Clusius, and gain a fuller idea of the infinite labour and patience that were required to produce their fine folios. Each room has been kept as nearly as possible in its original state; there is the quiet little room where the proof-readers worked, and one of its walls bears the names of all the "correctors to the press"; the long printing-room with its line of now silent presses; the room where the types were cast, with the old appliances, and types, matrices and punches all stored in strict order. Even the little office at the entrance to the old printing-house retains its ancient simplicity, and one almost expects the sudden appearance of the limping form of old Plantin! However, this unique and precious heritage from the past is more than an old printing-house that has ceased work—it is now a museum of the greatest interest, containing objects which make a wide appeal.

My special purpose in visiting it last summer was to examine the famous painting of the Potato plant; and Monsieur Maurits Sabbe, the courteous conservator, at once had the painting removed from its showcase and placed before me for closer examination. To him also I am indebted for some interesting facts connected with the production of herbals by the Plantin press, as, for instance, that the names of two women employed by Plantin solely to hand-colour copies of the herbals had been found recorded in the Museum archives. These archives are particularly interesting, and contain much as yet unpublished. They include many letters from Clusius and other famous men; and I was shown one from Clusius in which he encloses a list of wood blocks he was getting cut in Frankfurt-a-Main, naming "the son of Virgilius Solis" as the woodcutter; he also complains of the charges made by painters, and adds that though he himself could manage to outline some of the plants, he could not paint them (*comme je ne suis pas paintre*).

The Museum possesses a considerable number of the old botanic wood-blocks, including that of the well-known portrait of Dodoens. A representative collection of early printed books, including some incunabula, together with modern works dealing with many subjects, form the library; and the walls of some of the rooms are hung with paintings by many of the famous artists of the Flemish School.

The painting of the Potato plant (Fig. 121) is of unique interest as the earliest-known depiction of the species. It was found among some of the archives, which perhaps accounts for its remarkably good preservation; the rough-grained paper on which it is painted being still fresh and of a whitish colour. It measures about 8½ inches by 12½ inches, and shows the plant at about natural size. As is well known, this painting was sent to Clusius in 1589, and bears an inscription in his handwriting, recording that he had received two Potato tubers from Phillippe de Sivry in the previous year (It reads: "Taratoufli, received at Vienna from Phillippe de Sivry, 26 January, 1588.—Papas of Peru of Petrus Cieca"; *i.e.*, Pedro Ciaza de Leon, a Spanish soldier who spent many years in Peru, and published an account of the country in 1553.) The painting was also received fro the same donor, and is mentioned by Clusius his *Rariorum plantarum historia*, 1601. It very true to nature, both in form and colou and is probably the work of an unknown paint of Mons, of which de Sivry was Prefect. It ha traces of an ink outline, which has now fad to sepia colour; its colouring is a somewhat thi water-colour wash, supplemented by bod colour; and its technique retains traces of th traditional method of accentuating the for by definite coloured outlines, the flowers bei thinly outlined in red. An excellent ha coloured engraving of this painting, the wo of a talented young Belgian artist, Arthur Ste (who unfortunately died soon after its exec tion), appeared in Ernest Roze's *Histoire la pomme de terre*, Paris, 1898.

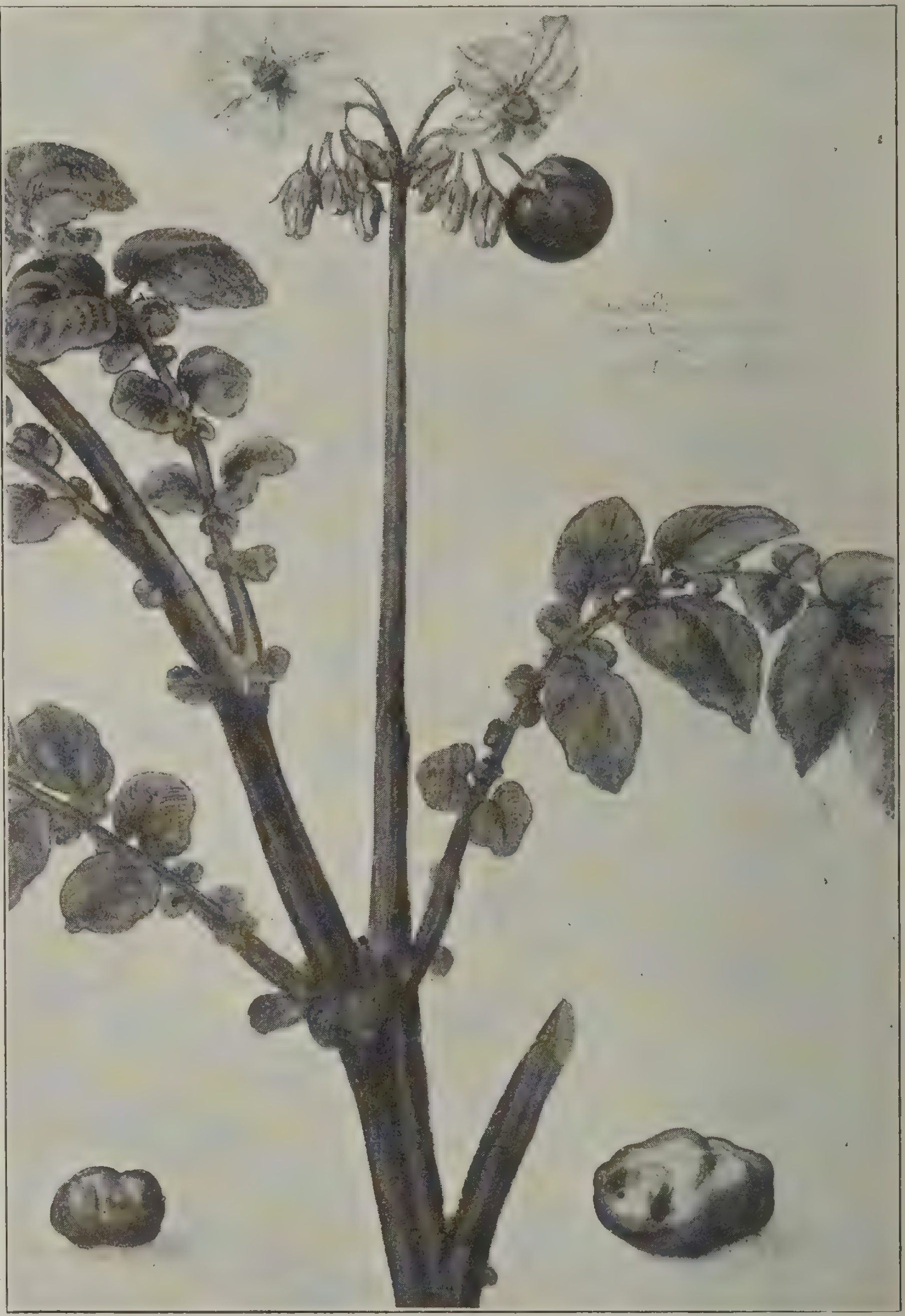

Fig. 121.—THE EARLIEST KNOWN PORTRAIT OF THE POTATO PLANT, FROM THE PAINTING IN THE PLANTIN-MORETUS MUSEUM, ANTWERP.

The missing links in the chain of evide as to the origin of the Potato plant are eith lost for ever, or only to be found by a lo and arduous search among Continental archiv (perhaps those of Spain). The known fa were admirably summed up in Ernest Roz book mentioned above, and by Dr. B. Day kson in *The Gardeners' Chronicle*, ser. 3, 27, 1900, pp. 161, 178-80 (with a half-tone m Sterck's engraving). It is now held as a sonable certainty that the Potato plant oriated in Chili, since only there has it been nd in an undoubtedly wild state. In contion with Gerard's share in the matter, the owing point has escaped notice, so far as m aware—namely, that Gerard's portrait, in ich he holds a stem of the Potato plant in ver, which appeared in the *Herball* (1597), ually bears the date 1598 in its inscription!

'he presence of this botanic painting in the kshop of a famous printer naturally leads a few considerations of the relation between botanic painter and the printed book. Clusius not use this fine naturalistic painting for the dcut of the plant in his book of 1601; but, he himself tells us, he gave preference to other paintings made under his direction, of which showed the roots of the plant. comparison between the Plantin Museum nting and any of the contemporary woodcuts ws how great must have been the loss when ilar paintings were copied as woodcut illustions. In fact, the whole history of botanic k illustration is more or less that of the stration of the original painters' work.

ven during the long era of the Manuscript bals, the original painter's designs were soon ied by inferior artists, to the detriment of h form and colour. The crude woodcuts of rly all the earliest herbals were based upon raded botanic paintings. Again, we must clude that even the woodcuts of the best iod of the herbals (about 1530-1580) failed do full justice to the naturalistic paintings n which undoubtedly they were copied. The r line-engravings, also based upon paintings, e too often the interpretations of inferior sts. It can be safely said that, in their ying degrees of merit, the botanic painters duced work which usually suffered degrada when interpreted by the producers of bookstrations; and in the colouring, where it is nd, the fall in artistic merit is very marked. is, indeed, not surprising that the handuring was usually a failure, as even a sixth century printer could not afford to pay good artist to colour hundreds of woodcuts each large folio volume. Only in isolated tances are well-coloured copies found, and se no doubt were the results of private aric effort. A striking example of a finely d-coloured book is the British Museum copy the English version of the *Hortus Floridus*, 4; this, however, was undoubtedly the work a skilful painter.

n connection with the early, hand-coloured rk in the printed book, I may mention an eresting point recently noted in connection h a very fine copy of the earliest printed bal, the *Herbarium Apuleii Platonici* (Rome, a 1483). The crudely-coloured illustrations ved, upon careful examination, to be most lfully covered with pieces of exceeding fine vn, the mesh of which broke up the hardness both outlines and colours. Its exact purpose perhaps to protect the colouring), or the date its employment in this instance, I do not ow.

It has often been a matter for surprise that illustrations in the early printed books uld have been of such an inferior character ien compared with much of the work of connporary picture-painters, whose noble repreitations of human beings and animals are ten unsurpassed. The explanation is a someiat involved one, but not so surprising when is remembered that the early printers, who re regarded with some scorn both by the lligraphers and artists, merely endeavoured to produce the illustrations found in MSS. (just the early types were but copies of the booknds of the period); and further, that the rliest illustrations in printed books were eant for popular use, which contributed to eping woodcuts on a lower level of merit. It evident also that the early printers put up ith inferior woodcuts because they could not ford to pay for better ones. What is surprising is that although we find them using red in printing some of their texts, the idea of printing their woodblocks in colours (practised from earliest times in China and Japan) never seems to have occurred to them.

Attempts in the first half of the 18th century to reproduce botanic paintings by printing in colour from the engraved copper-plate were failures, owing to the limitations of the processes used, and it was not until towards the end of that century that any real success was achieved. The co-ordination of effort and artistic merit apparent between Redouté ("the Raphael of Flower Painting") and his colour engravers was a rare phenomenon in the history of botanic iconography, and to it we owe a series of the most beautiful botanic illustrations yet produced; and only by a similar co-operation can such works be produced again. In the absence of these high qualities (to say nothing about the enormous cost of production), what is wanted at the present time is a reliable process of reproducing the painters' work in facsimile, at a moderate cost. A colour reproduction cannot hope to equal the original painting in every respect, but at least let it be in facsimile and not by the interpretation of an inferior artist. Some doubt is cast on the permanence of some of the present-day colour reproductions; and it would be interesting to know whether, in their higher grades, the producers would be ready to guarantee the permanence both of the colours and the papers used. The whole subject deserves the investigations of some able chemist. *S. Savage, 122, Foxley Lane, Purley, Surrey.*

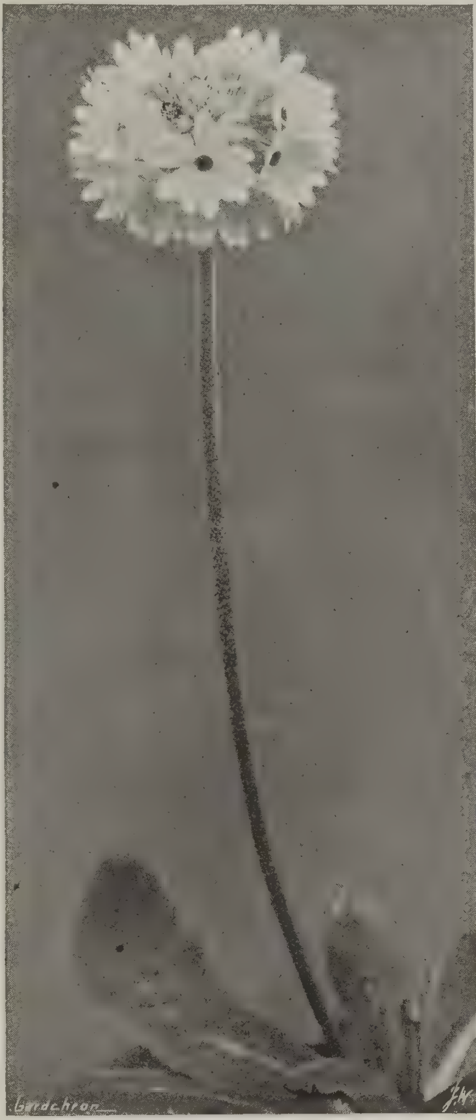

FIG. 122.—PRIMULA ERYTHROCARPA (SEE PAGE 255).

MARKET FRUIT GARDEN.

Weather of many kinds was experienced during April: sunshine, rain, gales from the east and the south-west, frost, snow, and thunder. A month of more unsettled weather could hardly be imagined. Growers are naturally waiting with some anxiety to see how the fruit bloom stood the ordeal. Personally, I am hopeful, because there were fine intervals during which bees were busy amongst the trees; and conditions, though often unfavourable for pollination, were seldom actually dangerous. There were several ground frosts, but only on one occasion did the thermometer 4 feet from the ground register 3° below freezing point, that being on the night of the 9th, following a very slight fall of snow. At that time Pears, Cherries, and the latest of the Plums were in bloom, but Apple blossom had not opened. The worst features of the month were the gales and frequent rain. The total rainfall, 2.64 in., is not excessive, but it was spread over sixteen days. The early-blooming Apples had to stand the worst of this; but, as they were still open at the close of the month, they may yet have a chance to set. What is badly needed now is a continuation of sunshine and warmth

Apple and other Fruit Bloom.

There is a good show of Apple bloom. The earliest opened on April 20, but the weather hindered development, so that blooming was hardly general at the close of the month, several varieties being still in the advanced bud stage. Varieties blooming, or about to bloom, profusely with me are: Beauty of Bath, Mr. Gladstone, Lord Grosvenor, Norfolk Beauty, Allington Pippin, Domino, Warner's King, Worcester Pearmain, Golden Spire, Duchess of Oldenburg, James Grieve, Cox's Orange Pippin, and Lane's Prince Albert. Bramley's Seedling is patchy, the bloom being almost confined to trees that did not crop last year. Newton Wonder, Early Victoria, Queen, Early Julyan, and Blenheim Pippin are very light indeed.

Cherries bloomed freely, as they nearly always do, but Pears made a poor show. The bush fruits are looking remarkably well, red and black Currants and Gooseberries carrying a lot of bloom.

Insect Pests.

Growers who grease-banded their trees predicted a big caterpillar year. With me caterpillars are not, so far, particularly numerous, but it is rather an aphis year. By far the most serious pest is the leaf-curling Plum aphis. In spite of spraying the leaves are now badly curled, and the only hope lies in rapid growth, which should come with warm weather, as there is no lack of moisture. In one plantation where spraying was left until the fall of the bloom the pest appears hardly to have been controlled at all. In another, where nicotine was added to the winter wash applied shortly before blooming, the trees are not nearly so badly infested.

Apple aphides were plentiful; but these are comparatively easy to control. Spraying has been very successful against them, and the Apple sucker, which was not so much in evidence as usual. Every tree on the place has now been sprayed with a mixture of nicotine, arsenate of lead, and casein spreader. Previously, I have always left the arsenate of lead until after blooming, but last year caterpillars injured so much of the newly-formed fruit almost before the petals dropped, that I decided to use arsenate of lead at the first spraying this time, so as to leave a dose of the poison on the trees for any caterpillars that escaped the nicotine or hatched out later. As arsenate and soap should not be mixed, a casein spreader was substituted for the soap. This combined wash seems to have worked well, at any rate, on Apples. I do not think it kills aphides so quickly as when soap is included, which is only to be expected, considering that the soap is itself a good insecticide; but if the trees are examined three days after spraying very few insects can be found. Rain followed quickly after almost every day's spraying, but some, at any rate, of the arsenate is still visible on the leaves. This chemical was certainly very well spread by the casein.

The spraying machine is now idle whilst the trees are in bloom. After the fall of the petals will come the first application of Bordeaux mixture to prevent scab, with casein spreader again. and the addition of nicotine or arsenate of lead (or both) where the presence of insects shows the need.

Dry Spraying.

Dry spraying or dusting is on the increase amongst market growers. They find it attractive because of the lighter work and saving of labour, though the materials cost more. Many of them consider it more effective than wet spraying against aphides, including American blight. In America also the dusting method is spreading, although in trials it has seldom given such good results as wet spraying. The absence of heavy water carting is a great advantage.

Some excellent power dust distributors are in use in this country, but the hand machines have generally left much to be desired. I have, however, now purchased a handy little "cloud gun," which enables me to try the effect of some of the dusts on a small scale. A dust consisting chiefly of nicotine and slaked lime is now obtainable; and this is certainly deadly to aphides on Apples and Peaches (under glass). I find dusting handy for quite young trees, or where only a few trees need to be done, and it is not worth while to get out the sprayer and have water carted to the spot; but I want further trial of it before giving any opinion as to its value as compared with wet spraying. The chief drawback is that an absolutely still day is necessary for the process. Generally, it is best to work in the evening, or even with the help of a lantern after dark.

Mixed Spraying Fluids.

The experience of *W. Tiplow* (p. 203) that lime-sulphur and lead arsenate both lose in value if mixed is, I think, quite unusual. It is common practice amongst market growers to add lead arsenate to lime-sulphur at summer strength and to Bordeaux mixture, and I have never found that there is any disadvantage. As both the fungicide to prevent scab and the arsenate to kill caterpillars must be used within a short time after the fall of the petals, a grower with many trees to spray is almost obliged to combine the two in one application. A fine misty spray is right for both lime-sulphur and lead arsenate; so I cannot see why either should lose value, unless there is some chemical reaction. As a matter of fact, the addition of lead arsenate has sometimes been suggested as likely to act to some extent as a spreader of the fungicide. On reference to a report of the experiments with summer fungicides carried out at the East Malling Research Station, I find that the addition of lead arsenate considerably increased the action of lime-sulphur as a "scabicide," but "may reduce its value in the control of mildew."

Pollinators for Cox's Orange Pippin.

The last piece of land I have to plant with fruit, a small meadow of 2½ acres, is being bare fallowed in preparation for planting in autumn. I want to make a plantation mainly of Cox's Orange Pippin, but it is essential to have a proportion of trees of another variety for the sake of cross-fertilisation. I have been looking round the place to see which kinds bloom at the same time as Cox's Orange Pippin. There are several which seem to come near enough. Allington Pippin and Mr. Gladstone were open at exactly the same time this year, but I do not want more of these. Others that are elegible are King of the Pippins, James Grieve, Bramley's Seedling, Newton Wonder, Golden Spire, and Blenheim Pippin. The best variety for the purpose would probably be James Grieve, because it blooms profusely every year, and soon comes into bearing; but I have not found it a good market Apple. Blenheim Pippin is too slow to come into bearing, and Bramley's Seedling and Newton Wonder are nearly as bad. Golden Spire does not sell well. The choice will probably fall on King of the Pippins, a poor thing, but apparently liked by the public. It is quite essential to have a pollinator, as there have been cases of plantations of Cox's Orange Pippins alone which have cropped very lightly indeed.

The Sugar Duty.

The disappointment of the Budget, from the fruit-grower's point of view, is the retention of the sugar duty. Dear sugar makes an enormous difference to the demand for fruit. Many times last year people said to me: "Plums are cheap enough; but we can't afford the sugar." Much less jam is made in the home, and the factories make little because they know that there will not be a big demand for dear jam, and they cannot make it cheaply. *Market Grower.*

VEGETABLE GARDEN.

MANURIAL EXPERIMENTS AT DROITWICH.

Various vegetable crops were grown at Droitwich on the different plots across which Apple, Pear and Plum trees were planted, and whose total crops during 21 years were recorded in the *Gard. Chron.* of April 28 last.

The Potato occupied a prominent position in these experiments. The results were very similar to those obtained from the fruit trees in nearly every case.

In 1899 three varieties of early kidney Potatos were planted on the four differently manured plots, in two sizes of 3 oz. "sets" and 2 oz. "sets" respectively. The following were the results per acre:—

	Sets.	EXPRESS.			MYATT'S EARLY PROLIFIC.			ASH-LEAVED KIDNEY (Webb).		
	Oz.	Tons.	cwts.	lbs.	Tons.	cwts.	lbs.	Tons.	cwts.	lbs.
Garden Refuse	3	7	11	76	8	15	2	7	7	88
	2	7.	7	88	8	7	26	7	3	12
Stable manure	3	9	2	89	9	16	45	9	6	76
	2	8	1	42	9	6	76	6	8	17
Inorganic fertiliser	3	7	9	82	7	13	70	6	16	14
	2	6	2	57	7	5	5	95	8	10
Stable manure and Inorganic fertiliser	3	10	11	109	10	8	8	8	7	36
	2	7	5	56	8	18	101	7	3	101

The fact appears to be established in this case that 3 oz. "sets" are more productive than 2 oz. "sets" when grown under similar conditions; many other experiments have proved the same. Also it appears that stable manure plus "inorganic" fertiliser produced the best crops; that stable manure alone produced the second best with 9 tons 16 cwt. 45 lb. to its credit; followed by garden refuse with over eight tons of tubers per acre—8 tons 15 cwt. 2 lb., to be precise. Inorganic fertiliser occupied the lowest position with 7 tons 3 cwt. odd to its credit or discredit.

The varieties of Potato named are well-known early sorts of good flavour, and fair croppers. The question of the natural deterioration of the Potato physically is not yet disposed of, but the flavour of the Potato appears in recent years to be almost entirely overlooked, provided the tubers are outwardly beautiful.

In 1898 Potato Sutton's Ringleader was planted in the experimental garden and subjected to a long trial under normally fair conditions extending over two periods of time totalling 20 consecutive years. The first period was 1899 to 1905 inclusive. The second period 1906 to 1920 inclusive. As the garden was enlarged in the first part of 1906, this gave opportunity for extended trials. A new stock of tubers was obtained in 1906, and "seed" from this stock was saved and planted every year to 1920 inclusive. The results were as follow from "seed" 2½ to 3 oz. in weight each:—

Year.	Tons.	cwts.	lbs.	Year.	Tons.	cwts.	lbs.
1899	8	19	38	1910	*6	6	0
1900	14	19	53	1911	*5	5	64
1901	13	5	78	1912	11	1	0
1902	11	13	0	1913	5	9	84
1903	10	10	0	1914	9	3	0
1905	4	13	0	1915	6	11	32
(new seed)				1916	6	17	83
1906	12	5	60	1917	7	1	97
1907	*5	3	5	1918	9	18	42
1908	*6	15	0	1919	5	8	27
1909	*7	13	0	1920	8	13	21

A new supply of "seed" of Ringleader was obtained in 1906 because a larger area of land was planted with that variety, and it was desirable that there should be no possibility of the old and new stocks becoming mixed.

The apparently small crops marked with an asterisk in the years 1907, 1908, 1909, 1910, 1911 were dug, weighed and sold as young Potatos; therefore, the weights recorded for those years do
not represent the weights they would hav
tained if they had been allowed to gro
maturity, as was demonstrated in 1912,
the crops were allowed to attain maturity.

This is a suitable point at which to intr
the subject of an experiment with—

Flowers of Sulphur on Potatos.

Ringleader was the variety chosen for
purpose, the "seed" tubers being of e
size: this was in 1918. The objective wa
discover the effect, if any, upon the ski
Potatos with regard to scab principally,
any other diseases incidentally, or upon
weight of the crop. The following were
results:—

	Tons.	cwts. Per acr
Ringleader, sulphured, crop at the rate of	9	18
Ringleader, not sulphured, crop at the rate of	9	12

The sulphur was placed in a piece of ch
cloth and dusted lightly over the tubers
along the small furrows in which they
planted. Not only did the sulphured tu
produce the slightly heavier crop, but they
perfectly clean, bright, and free from ble
of any kind. Those not sulphured were
from disease of any kind, but not so clear
free from blemish.

Having grown good crops of Magnum Bo
Potatos in clayey soil in the years 1880 to
inclusive, and afterwards being unable to ol
the variety until 1912, that year we obtain
small supply of seed from an old and hi
reputable firm. It was duly planted in a co
of the garden under unfavourable condition
to position and time. Its behaviour, comm
ing 1912 and ending 1920, may not be wit
interest, and possibly one or two lessons.
following is its record for the eight years e
1920:—

Year.	Tons.	cwts.	lbs.	
1912	5	3	80	per acre.
1913	18	10	0	,, ,,
1914	17	2	52	,, ,,
1915	14	8	51	,, ,,
1916	7	6	9	,, ,,
1917	8	17	106	,, ,,
1919	14	0	32	,, ,,
1920	7	12	51	,, ,,

One lesson obviously is "Be not hast
condemnation." Magnum Bonum was a
servedly popular favourite more than
years ago; is it still with us under an
name? *J. Udale.*

BIRCH LOGS AND SILVER-LEAF DI
EASE ON PLUMS.

Last autumn I bought a quantity of
logs for winter fires; from lack of other ac
modation these were stacked under and
to a Victoria and another Plum tree.
walking round the garden with Mr. Goa
about the end of November, we observed
the ends of these logs showed abundant
and lilac excrescences of Stereum purpureum
he remarked, in regard to the Victoria especi
"it was inviting trouble." As it was impos
to move the two tons of logs at once, a b
lamp was passed over the growths and
followed by swabbing with fairly strong co
acetate. This stopped the local appearance,
the fungus then began to show up on the s
so the logs were removed into a dry shed
some formalin sprayed over them.

I am told that Birch is a very favourite
for the fungus, and this note is to warn ot
of its danger, whether, as I had it, in exp
logs or for staking trees or bushes. A fr
tells me that he lost two Victoria Plum
through Silver leaf, near which Birch logs
been stacked and which further suffered
grazing by a wheelbarrow laden with the
but he had not connected the two together.

Perhaps some more enlightened contrib
would detail the susceptibilities of various w
to the fungus, so that they may be avoi
Hereabouts Birch is often used for Pea st
Should no trouble arise in my garden it
be a negative tribute to the value of the sulp
oil which I have advocated as a dressing
cuts on trees for many years. *H. E. Durl*

HOME CORRESPONDENCE.

Darwin Tulips.—The value of Darwin Tulips the decoration of the flower garden in the nth of May cannot be over-estimated, and hough it is understood by very many garden ers, there remain many to whom the ele- ice, beauty of form and colouring of these wers is as yet a closed book. Certain ieties are somewhat expensive, but even in se days of economy in gardens there are nty of fine varieties obtainable at a com- atively trifling cost, and if orders are placed h the numerous British firms who grow their n bulbs, the purchaser has the satisfaction knowing that he or she is patronising a ne industry. British-grown Darwin Tulip bs are second to none in quality, and there no need to make purchases outside Great tain and Ireland. In his garden at Myddle- House, Waltham Cross, Mr. E. A. Bowles ually demonstrated the garden value of Dar- n Tulips before the war in a series of beds se to the New River, and probably he con- ues so to grow them, as he is a garden er not likely to discontinue the use of May- wering Tulips until he finds some better sub- t for the "merrie month." It is an ex- lent sign of the times that these late-flowering lips are being grown more extensively in blic parks and gardens than was formerly the se, because such popular use is of distinct ucational value. Garden scenes in which rwin Tulips figure have been published in *rd Chron.* from time to time, and the accom- nying illustration, Fig. 123, shows a planting the formal garden at Mountain House, Chep w. *C.*

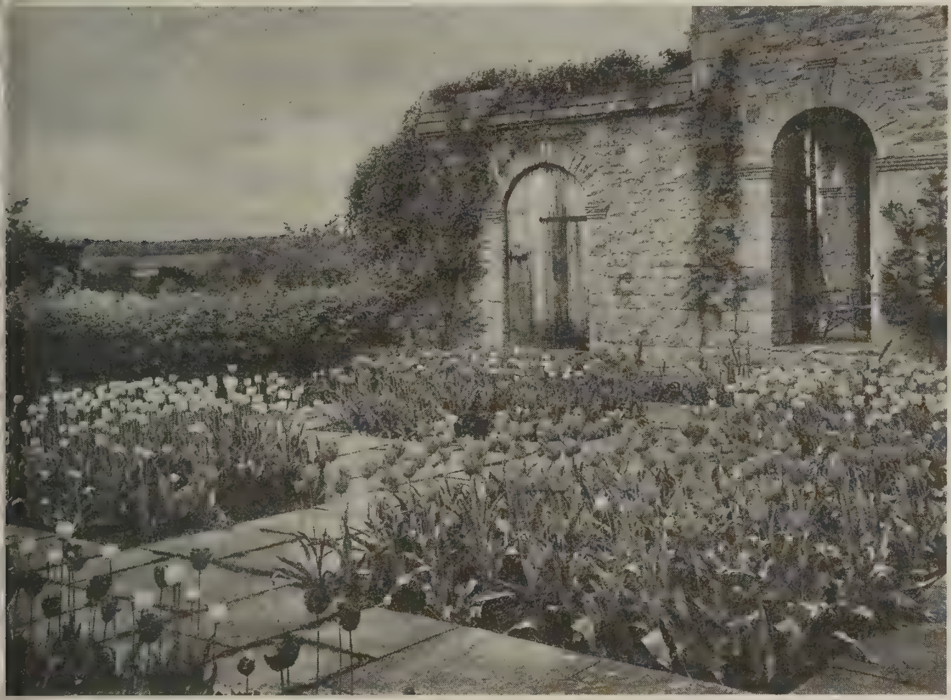

FIG. 123 —DARWIN TULIPS IN THE FORMAL GARDEN AT MOUNTAIN HOUSE, CHEPSTOW.

Gardeners' Wages.—This discussion seems ely to do good in more ways than one. Com- risons are odious, and we have heard more an enough of the difference between the n who went to the war and him who stayed home. Gardeners as a class did their duty th the best, and, as *S. H. G.* states on 203, very few of them had high wages during e war. Not many were engaged in munition- aking. Farming was their job as well as rdening; seven days of twelve hours daily 6d. an hour was a quite common remunera- n. On the question of a combination or ion of gardeners, or whatever else it may named, I would remind those interested at in 1903 the British Gardeners' Association s formed for the purpose of "raising the status" of gardeners It was expected that, when this was accomplished, wages would improve. That is twenty years ago—and a combine of gardeners is still advocated. *W. M.* (p. 166) does some grumbling, but he has had three increases in three years, which is not bad. This brings me to a point I should like to emphasise—when a man is worth more than 50s. per week he will get more. For, if his employer once recognises his worth, he will pay him accordingly; but it is up to the gardener to prove it, and very likely he will have to ask for it. Our old profession is the best yet, and there is more than money value to be got from it; but he who works for money only will get just that, and certainly not so much as he expects. *H. Arnold, Bedgeonry Park, Goudhurst.*

—— With regard to gardeners' wages, I was better off when a foreman than during my first appointment as head. I passed through several gardens, good and bad, and at wages I am ashamed to tell. I have had charge of one of the so-called big places, miles from a town, so my children fitted themselves for something better than gardening; two are now earning very much more than I am. But wages are not everything; peace and contentment, with encouragement from one's employer, are worth a great deal. Some gardeners consider wages more important than anything else, and look more like the owner of the garden than the employee. A few of my gardening friends after a term of years in private gardens have started a nursery or market garden on their own, just because they wanted to be independent. I myself hope to do the same before many years have passed. Some of us have to thank our wives for helping us on with a cheery word when we have been downhearted. *J. M'C.*

Wood and Carpentry at Luxor.—To those who are interested in timber and carpentry, it would be of the greatest possible utility if some one who resides in the district, and with expert knowledge, would communicate the identity of the wood and also the style of carpentry that was made use of in the construction of the various objects that have been found in Tutankhamen's tomb. Ancient writ tells us of Cedar, Fir, Almug and Gophir woods. The sizes of timbers, how they were jointed, whether treated with a preservative, and the condition when found, would all be information of the greatest value. Perhaps your paper can assist? *A. D. Webster.*

SOCIETIES.

CORNWALL DAFFODIL AND SPRING FLOWER SHOW.

May 1 and 2.—The exhibition of the Cornwall Daffodil and Spring Flower Society was held on these dates in the Market Hall, Truro. It was the finest show of the series, the one of this year being the eighteenth, and the first to be held since the war. The dates were later than those of the previous shows, and Daffodils were over and there were few exhibits of Tulips. But other spring flowers were shown in greater variety, and in finer condition than hitherto. The greatest attractions were Rhododendrons and other flowering shrubs, the exhibitors including such keen cultivators of Rhododendrons and rare and choice shrubs as Rev. A. T. Boscawen, Ludgvan, Major H. L. Dorrien-Smith, Tresco, Mr. J. C. Williams, Caerhayes, Mr. R. Barclay Fox, Falmouth, Captain G. H. Johnstone, Trewithen, Mr. E. J. P. Magor, Captain Tremayne, Carclew, Mr. P. D. Williams, Lanarth, and Mrs. Powys Rogers, Tregye. The outstanding features of the show were the collections of shrubs staged by the Rev. A. T. Boscawen, and of Rhododendrons from Mr. J. C. Williams' gardens. Major H. L. Dorrien-Smith brought rare and choice plants from Tresco, his two outstanding plants being Metrosideros diffusa and Isopogon latifolius, natives of New Zealand and Western Australia respectively. The Rev. A. T. Boscawen was awarded a First-Class Certificate for Telopea oreades; Mr. G. H. Johnstone a First-Class Certificate for Pieris Veitchii, and Mr. J. C. Williams a First-Class Certificate for Rhododendron haematodes. The premier prize for a group of Rhododendrons was awarded to Mr. J. C. Williams.

The judges were:—Rhododendrons, Col. Stephenson Clarke, C.B., Cuckfield, Sussex, and Mr. P. C. M. Veitch, Exeter; shrubs, Messrs. John and C. Nix, Tilgate, Sussex; herbaceous plants and Tulips, Messrs. E. A. Bowles, Enfield, and Reginald Cory, Cardiff.

The following are the principal classes with the chief prize-winners:—

Not fewer than ten varieties of Daffodils: 1st, Mr. F. G. Lawson, Truro; Cottage Tulips: 1st, Miss Rogers, Tregye; Collection of twelve hardy spring flowers, excluding shrubs: 1st, Mr. C. Phillips; 2nd, Mrs. Powys Rogers; Collection of six hardy spring flowers, excluding shrubs: 1st, Mr. C. Phillips; 2nd, Miss C. C. Rogers; Group of hard-wooded flowering shrubs or climbers, excluding Rhododendrons: 1st, Rev. A. T. Boscawen; 2nd, Mrs. C. H. Hext, Trebah, who also excelled in the class for Acacia (Mimosa) grown in the open; New Zealand hard wooded shrubs: 1st, Rev. A. T. Boscawen; Australian hard-wooded shrubs: 1st, Mrs. Powys Rogers; Twelve trusses of hybrid Rhododendrons (distinct): 1st, Mr. J. C. Williams; 2nd, Capt. Tremayne; Large-leaved Rhododendrons of the R. Falconeri type: 1st, Miss Daubuz.

Polyanthus three varieties: 1st, Mr. G. H. Fairbrother, Roskrow, Penryn. Collection of Primula species (hardy): 1st, Miss Rogers; 2nd, Rev. G. T. C. Pearce, Creed Rectory. Collection of 12 Alpines in pots: 1st, Miss C. C. Rogers. Collection of 6 Alpines in pots: 2nd, Miss C. C. Rogers.

Non-competitive exhibits were contributed by Messrs. G. Sharpe, Truro; Mr. Henry Hodge, St. Austell; Messrs. W. Ruse and Sons, Falmouth; Messrs. Allwood Bros., Wivelsfield, and Messrs. Treseder and Co., Truro.

NEWCASTLE HORTICULTURAL.

Mr. R. E. Richardson presided at the monthly meeting of this Society, held on the 24th ult.; a very large company was present to hear a lecture, by Mr. J. N. Kidd, secretary of the Northern Apple Culture Society, on "The Future of Apple-Growing in England." Mr. Cook, representative of the Ministry of Agriculture in Durham County, made a special appeal to the members to support the Four Northern Counties Apple Congress, which is hoping to hold a show about October at Durham, and the Imperial Fruit Show, which will be held at Manchester.

ROYAL HORTICULTURAL.

May 8 *and* 9.—The Royal Horticultural Hall was well filled with exhibits on these days, but there was scarcely such a crowd of visitors as on recent occasions. Tulips, Roses, Irises, Orchids, flowering Shrubs, Carnations, Rhododendrons and Anemones were among the principal attractions. The Floral Committee had a busy time again, as there were about forty novelties and nearly forty groups to be dealt with; many of the plants which received awards were interesting and beautiful.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), C. J. Lucas, R. Brooman White, H. T. Pitt, Arthur Dye, Fred. K. Sander, Henry H. Smith, H. G. Alexander, A. McBean, E. W. Ashton, W. J. Kaye, R. G. Thwaites, J. Wilson Potter, Stuart H. Low, Frederick J. Hanbury, Chas. H. Curtis, and the Hon. Henry D. McLaren.

FIRST-CLASS CERTIFICATE.

Odontioda Naomi (*Oda. Vuylstekeae* × *Odm. Nathaniel*), from R. GERRISH, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell). The plant shown was a perfect specimen bearing a stout spike of fourteen large and well-formed flowers of a deep ruby-red colour, with a terra-cotta tint. The lip is showily displayed, the yellow crest having red markings in front.

AWARDS OF MERIT.

Ondontoglossum Tagus Gerrish's var. (*Othello* × *Doris magnificum*), from R. GERRISH, Esq. A most beautiful variety, the plant bearing four flowers of perfect shape, coloured violet purple, with slight white margin and markings between the blotches of colour. The lip, as in some other Odm. Othello crosses, is large and broad, white in front, with violet blotches around the yellow crest.

Odontoglossum Gorizia var. Imperial Purple (*Jasper* × *President Poincare*), from J. J. BOLTON, Esq., Claygate Lodge, Claygate (gr. Mr. S. Lyne). The plant bore a spike of six flowers each four inches across, the sepals and petals being mauve purple, with a white margin; the petals are prominently toothed on the upper side. The lip is white with violet blotching.

OTHER EXHIBITS.

Messrs. STUART LOW AND Co., Jarvisbrook, Sussex, were awarded a Silver Banksian medal for an effective group of Cattleyas, Laelio-Cattleyas, and Odontoglossums, with slender Epidendrums and well-flowered Dendrobiums at the back. The varieties of Cattleya Mossiae were specially good, C. M. grandis being one of the largest and best in form yet shown. Several new Laelio-Cattleyas and Sophronitis crosses were also shown, and among rare botanical species Cirrhopetalum Collettii, with elegant umbels of yellow and red flowers; Bulbophyllum barbigerum, with its feather-like lip, which always attracts; Vandas and Cypripediums were also included.

R. GERRISH, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell) showed a richly coloured variety of Odontoglossum St. Elmo (Admiral Sturdee × Empress of India).

PANTIA RALLI, Esq., Ashstead Park (Orchid grower, Mr. Farnes) showed Odontoglossum Imperial (Colossus × gandavense) with a spike of three deep claret-red flowers with white markings.

Messrs. FLORY AND BLACK, Slough, showed several fine hybrids, Cattleya Duchess of York (Empress Frederick × Rhoda), a large, rosy mauve flower with ruby-crimson lip and yellow disc; and C. Sohma (Empress Frederick × Mossiae) being specially attractive. The white-flowered C. Irene was also shown by this exhibitor.

Messrs. COWAN, Southgate, showed Cattleya Tityus var. Duchess of York, a very handsome form with richly coloured lip.

Floral Committee.

Present: Mr. H. B. May (in the chair), Sir W. Lawrence, Messrs. D. B. Crane, R. W. Wallace, M. C. Allwood, W. B. Cranfield, W. B. Gingell, W. Howe, C. R. Fielder, W. P. Thomson, G. Reuthe, H. J. Jones, John Heal, Geo. Harrow, Donald Allan, J. B. Riding, Thos. Stevenson, W. H. Page, Jas. Hudson, J. Jennings, A. Turner, C. Williams, W. J. Bean, H. D. McLaren, Sydney Morris, H. V. Warrender, Clarence Elliott, G. W. Leak, R. C. Notcutt, Reginald Cory, E. A. Bowles, Gerald Loder, J. W. Barr, and W. R. Dykes.

NOVELTIES.

AWARDS OF MERIT.

Hydrangea Maréchal Foch.—A very fine variety producing huge heads of large "flowers" which shade from bright majenta rose to almost blue. A handsome and apparently easily grown Hydrangea, as the specimen shown was in a 32-sized pot, and carried ten heads of bloom. Shown by H. J. JONES, Lewisham.

Cytisus Dorothy Walpole.—A beautiful Cytisus of more or less erect habit, with rich rose-coloured standard, much paler on the inner surface; the inner segments are rich, brownish velvety crimson, and the golden anthers show between them. The keel is rose-coloured. A very free flowering seedling, and one that should show up well in the garden under bright sunshine. Raised in the gardens at Mt. Usher. Shown by Messrs. WATSON AND SONS, Killiney Nurseries, Killiney.

Rhododendron decorum var. Mrs. Messel.—In this fine variety the broad, flattened flowers are pure white, seven-lobed, and carried on long foot stalks, in a large truss of a dozen flowers. The blunt pointed leaves are dull green above and grey-green beneath. Shown by Lt.-Col. MESSEL (gr. Mr. J. Comber), Nymans, Handcross, Sussex.

Rhododendron Sargentianum.—A small and interesting species of dense twiggy growth, with small glossy, deep green leaves that are slightly ferruginous beneath. The greenish cream-coloured flowers, half an inch broad, are borne in terminal clusters of from three to five; faintly fragrant. Shown by LADY ABERCONWAY (gr. Mr. Puddle), Bodnant, North Wales.

Cytisus Cornish Cream.—A free flowering Broom, with fair-sized cream coloured flowers. It should prove very useful for massing. We understand it was raised by Mr. P. D. Williams, Lanarth. Shown by Mr. R. C. NOTCUTT, Ipswich.

Viola hybrida Haselemere.—A bold and strong growing hybrid, with almost Pansy habit, and producing an abundance of medium-sized lilac coloured flowers, prettily lined with blue around the golden eye. Shown by Messrs. THOMPSON AND MORGAN, Ipswich.

Rose David Lloyd George.—A very fine H. T. Rose, raised at Uxbridge. It is not only good out-of-doors, but excellent under glass, where it will produce flowering growths so much as 4 ft. and even 5 ft. high. The flowers are of the finest size and form, with the margins of the broad petals slightly revolute. The colour is rich pink, salmon tinted; slightly fragrant. Shown by Mr. ELISHA J. HICKS, Hurst, Twyford.

Iris Douglasiana Merton.—This is a delightful little Iris, growing about 2 ft. high, slender and beautiful. The flowers are nearly four inches across, pale blue, with deeper, richer blue on the broad part of the falls, where the base is yellow, feathering into white. The standards are narrow and have the deeper blue shading at base and centre. Raised and shown by Mr. W. R. DYKES.

Iris, tenax purpurea.—Another charming Iris of fine form, and rich rosy purple colouring that lights up wonderfully in sunshine. The broad falls have a deeper hued centre and a gold and white feathered base. Shown by Mr. W. R. DYKES.

GROUPS.

Rhododendrons, though not in such large quantities as a fortnight ago, again formed an appreciable part of the general floral exhibits. Mr. J. H. LOWINSKY brought a collection, mostly of single trusses, of his own seedlings. These were of superlative merit and attracted a deal of well-deserved admiration. They appeared to be chiefly hybrids of R. Aucklandii and R. arboreum, and were characterised by delicacy of colouring and individual flowers of exceptional size. The trusses were distinctl more compact than is usual with these half-hard types (Silver-Gilt Flora Medal).

In the annexe Messrs. R. GILL AND SON ha a small, but very interesting collection of Rh dodendron seedlings and named varieties (Silve Flora Medal). Mr. J. REUTHE included quite considerable number of half-hardy Rhododen drons in his customary group of trees, shrub and alpines (Silver Banksian Medals).

On a floor space Messrs. WALLACE AND Co showed some particularly well-flowered bushes Rhododendrons in such sorts as Pink Pearl, Mr C. C. Stirling, and Hugo de Vries, with densel flowered plants of Mollis Azaleas, which provide glowing masses of rich colour. They also in cluded vases of very good Darwin Tulips (Silve Banksian Medal). Messrs. L. R. RUSSELL, LTD also had an attractive group of flowering shrub which included Azaleas in variety, variou Clematises, Cytisus and some very good Hi peastrums (Silver Banksian Medal). Azaleas the several types, together with double-flowere Viburnums were shown by Messrs. R. AND CUTHBERT (Silver Flora Medal).

Particularly well-flowered examples of Cytisu Dallimorei were prominent in an exhibit of M AMOS PERRY, who also showed a well-flowere batch of the Golden Geum Borisii, and su Irises as I. Souvenir de Zwanenberg and florentina (Silver Banksian Medal). At the en of a pleasantly disposed little alpine garde Messrs. CUTBUSH AND SONS displayed a go variety of Azaleas (Silver Banksian Medal).

In a corner group Mr. R. C. NOTCUTT di played excellent standard Brooms with wel flowered examples of Eremontia californic Ceanothuses and Lilacs (Silver Banksian Meda THE DONARD NURSERY Co. brought over small collection of uncommon shrubs, which i cluded flowering sprays of Pittosporum May P. Buchananii, Tricuspidaria lanceolata an Cytisus daurica, with a number of Cytis albus varieties of considerable interest (Bron Flora Medal).

Roses of merit were shown by Mr. ELISH J. HICKS, who gave the central position in h collection to a large quantity of the new variet David Lloyd George, and this was especiall effective, with Columbia, Premier and Mrs. H Wimmett; the last-named is a medium-siz bloom of deep pink colour (Silver Banksia Medal). Mr. GEORGE PRINCE included Pa Coral Cluster, C. E. Shea and Souv. Claudius Pernet in his collection of Roses (Silv Banksian Medal). Messrs. FRANK CANT A Co. had an attractive collection of exhibiti and Polyantha Roses (Bronze Flora Medal .

Carnations in great quantity were staged Messrs. ALLWOOD BROS., who include very la stands of Enchantress Supreme and Edwa Allwood, and in another place showed their u ful Dianthus Allwoodii varieties (Silver-G Banksian Medal). Mr. C. ENGELMANN had a g collection, chiefly of varieties useful providing quantities of cut blooms (Sil Banksian Medal). Messrs. STUART LOW AND C showed Carnations in quantity, Acacia pulchell Erica Cavendishii and other greenhouse pla (Silver Flora Medal).

Mr. H. J. JONES had a fine group of larg headed Hydrangeas growing in relatively sm pots. These include Maréchal Foch (see Awa of Merit), Mme. Chantaud and Mme. Truffau rich blues, and Lancelot, an elegant deep p (Silver Flora Medal). Messrs. PEED AND S staged Streptocarpus in quantity, which ill trated a desirable strain and good cultivati They also included Hippeastrums bearing lar spikes of bloom (Silver Banksian Medal). Mess JARMAN AND Co. again showed a good collecti of trusses of single and double-flowered Zo Pelargoniums (Geraniums) and some beauti Violas. Messrs. CARTER PAGE AND Co. also h a praiseworthy collection of Violas, with we arranged alpines and early flowers of Dahl (Silver Banksian Medal).

The CHALK HILL NURSERY Co. had a splend collection of their most desirable strain of Gia Pansies and also showed pleasant batches Primula japonica, P. Lissadel hybrid and oth sorts, with Cheiranthus hybrids, which embrac wide range of charming colours combined th freedom in flowering (Bronze Flora Medal). r. M. Prichard had a large quantity of in- resting alpines and hardy border flowers, in- ding densely flowered plants of the double- wered Welsh Poppy of rich orange colour, and e blue Meconopsis Prattii (Silver Flora Medal). ominent in a collection arranged by Messrs. . H. Rogers and Son was a batch of well- wered Incarvillea grandiflora. They also owed Primula Cockburniana and Leptosper- um Chapmanii (Silver Flora Medal).

The Maytham Gardens contributed deep blue loured Hydrangeas, Darwin Tulips in variety, cluding La Merveille of gorgeous colouring. th other decorative plants, making a highly tractive exhibit (Bronze Flora Medal). In e annexe Mr. W. Wells, Junr., staged Litho- ermum prostratum Heavenly Blue, Trollius re Globe and other useful hardy plants (Bronze ora Medal). Mr. F. G. Wood had a large antity of a very good yellow Polyanthus in s exhibit (Silver Banksian Medal). Orchis orio was associated with Gentiana acaulis by r. Clarence Elliott (Bronze Flora Medal). essrs. Reamsbottom and Co. again showed wers of their excellent strain of St. Brigid nemones (Bronze Flora Medal). Various free- wering Brooms and border flowers, including ollius, were staged by Messrs. Bakers, Ltd. ronze Flora Medal).

A pleasant arrangement of hardy flowers, in- ding alpines, was made by the Misses Hop- ns. Messrs. Maxwell and Beale also showed ny alpines and border flowers (Bronze Flora edal). Dahlias, both as cut blooms and dwarf ants, shown by Messrs. J. Cheal and Sons, ved as a reminder that it will soon be the ne to plant out these indispensable autumn wers. The plants were of the very dwarf and e-flowering Mignon type. They also had rious hardy Daphnes, Cytisuses and Azaleas ilver Banksian Medal).

Irises of good quality and great interest were ged by the Orpington Nurseries Co. There re many seedlings of Iris pallida, which pro- ce long spikes of bloom rather earlier than e type and carry, on an average, three fully ened flowers simultaneously with plenty of ds. The various Reglio-cyclus hybrids were arfer, but carried beautifully marked flowers ilver Banksian Medal). The very dwarf blue wered Iris cristata was well shown by Messrs. aterer, Sons and Crisp in a group which so included other Irises, the dwarf Phlox E. C. Chambers, and a variety of border wers (Silver Banksian Medal).

A large collection arranged by Messrs. B. adhams, Ltd., contained a well-flowered branch Edwardsia (Sophora) grandiflora, many hardy imulas and Cytisuses (Silver Banksian Medal). he lovely and fragrant Moutan Paeony La rraine, which received an Award of Merit in 13, was shown by Messrs. J. Piper and ns in association with the free-flowering enista sagittalis. They also had many useful iolas (Silver Banksian Medal).

Mr. Philip Ladds staged plants of Zonal elargonium Gloriation, a large truss of scarlet wers and P. Ellangowan, magenta; two very eful single-flowered Bedding Geraniums.

Narcissus and Tulip Committee.

Present: Sir A. D. Hall (in the chair), Mrs. rodie, and Messrs. E. A. Bowles, W. W. wler, G. W. Leak, J. Jacob. W. F. M. Cope- nd, J. W. Jones, H. V. Warrender, J. D. earson, W. B. Cranfield, C. W. Needham, eginald Cory, W. Poupart, H. Smith, and Chas. . Curtis (Hon. Sec.).

Award of Merit.

Tulip Alcemene.—This is a large and hand- me Cottage Tulip, its broad segments making a big cup-shaped flower. The colour is rich rise, with a brighter shade on the interior rface of the segments. The flowers have a hite base, prettily margined with bright blue. he variety grows about 20 inches high, and as raised by Mr. E. H. Krelage, Haarlem. own by Messrs. R. H. Bath, Ltd.

Groups.

A magnificent effect was obtained by Messrs. Dobbie and Co., with their collection of Tulips. A bold style of arrangement was adopted, large stands and vases being filled with generous quantities of excellent flowers, and these, raised at the back, made a huge bank of glowing colours. It was the quaintly-shaped showy Parrot Tulips that first attracted attention, and these represented more varieties than we remember having previously seen at any show. The best of this type were Markgraaf, lutea, Fantasy, Sensation, Cramoisie Brilliant, and Perfecta. The highly decorative and popular Darwin Tulips were present in great variety, and included Inglescombe Pink, King George, Faust, Philip de Comines, Triton and Velvet King. A large stand of rich golden-yellow flowers of Walter T. Ware also attracted a deal of admiration. At one end of these splendid Tulips there was a small collection of very good Sweet Pea blooms. (Gold Medal).

On the opposite side of the entrance Messrs. Barr and Sons staged an exceptionally complete collection of Tulips. Long-stemmed Darwin varieties in many shades of colour predominated, but while this collection was of the most interest to the specialist, it was not so spectacular as some others. The chief Darwin varieties were Sophrosyne, The Bishop, Suzon, Farncombe Sanders, Negro, Clara Butt, Zulu, Velvet King, The Giant and Hippolyta. Besides these and very many more Darwins, there were Cottage, Parrot and Old English Tulips in considerable variety, and of good quality. (Gold Medal).

A very pleasantly arranged collection was shown by Messrs. J. R. Pearson and Sons, Ltd., and this contained in the association of the brown-gold Dom Pedro and the pale mauve Erguste a charming colour blending. The deep rose-cerise Andromaque presented colour difficulties but, alone, it was glorious in its vivid brightness. The yellow varieties Mrs. Moon and Gesneriana lutea and the rich Orange King were also very charming. (Silver-gilt Banksian Medal).

Many beautiful Tulips were artistically staged by the Welsh Bulb Fields Co. These included Orange King, Moralis, Farncombe Sanders, Marcella, Louis XIV., and Loveliness (Silver-gilt Flora Medal). Near by Messrs. R. H. Bath, Ltd., had a fascinating collection amongst which special attention was directed to such varieties as La Merveille, Isabella, Artemis, Nauticus, Psyche, The Sultan, Le Nigre and La Tulipe Noire. (Silver Flora Medal).

A large vase of the brilliant deep rose-pink Tulipa Gesneriana spathulata was very prominent in the collection arranged by Messrs. G. Bunyard and Co. The lilac-tinted Melicette and the purple and gold Turenne were also of especial merit. (Silver Banksian Medal).

In the annexe Mr. B. Pinney had a very pleasing collection of Tulips, associated with Aquilegias, Irises and Lily-of-the-Valley. The Tulips were well grown and included the best varieties. (Bronze Banksian Medal).

Fruit and Vegetable Committee.

Present: C. G. A. Nix (chairman), J. Cheal, W. Poupart, A. H. Pearson, T. Smith, S. B. Dicks, W. F. Giles, Geo. F. Tinley, P. D. Tuckett, A. Bullock, A. Metcalfe, G. Reynolds, H. Prince, T. Pateman, E. Neal, J. Basham, W. Bates, W. H. Divers, W. J. Lobjoit, A. N. Rawes, H. S. Rivers, F. Jordan, E. A. Bunyard and H. V. Taylor.

Messrs. Sutton and Sons were awarded a Silver-Gilt Knightian Medal for a collection of early vegetables. The various kinds were not of large size, but all the dishes were of excellent quality, the more notable being Cabbages April, Favourite, and Flower of Spring; Lettuces Golden Ball and Matchless; Carrots Scarlet Horn and Inimitable Forcing; Marrows Table Dainty and Pen-y-byd; and Broccoli, Latest-of-All. There were also Potatos, Mushrooms, French Beans, Mustard and Cress, Radishes and Cucumbers.

Messrs. Laxton Bros. made a very attractive exhibit with their new Strawberry, The Duke, and were awarded a Silver Hogg Medal. The Duke is a roundish-wedge shaped fruit, a very heavy cropper, especially in pots, and, being early, is very suitable for forcing. The exhibit also included a few fruits of the second early variety, Lord Beatty, which is pronouncedly wedge-shaped and of a brighter colour than The Duke.

Obituary.

F. W. Jordan.—Fellows of the Royal Horticultural Society and exhibitors at the R.H.S. Hall will learn with regret of the death of Mr. F. Jordan, late caretaker of the hall from its erection in 1904, until 1921, when he retired owing to failing health. Mr. Jordan was a willing worker, and a busy man, but he was always ready to help exhibitors and visitors in any way he could. The esteem in which he was held in the horticultural world was evident on the occasion of his retirement, when a testimonial fund was opened, and liberally subscribed to. He died at Crofton Park, where he resided after leaving Vincent Square, and was buried at Ladywell Cemetery on May 3. The wreath from the R.H.S. was inscribed "With deepest sympathy and with kind remembrances from all at Vincent Square." Mr. Frank Reader was present on behalf of the Society. The late Mr. Jordan was 69 years of age.

Edwin McNicol.—After a long and painful illness borne with great fortitude, Mr. E. McNicol died at Leigh-on-Sea, on Saturday, April 28, at the comparatively early age of 49 years. He was a baker and confectioner by trade, but was greatly interested in gardening; he was born at Hodnet Hall, where his father, Mr. J. McNicol, was gardener to Algernon H. Percy, Esq.

TRADE NOTES.

The following is the exact wording of a statement issued by the Commercial Attache to the Netherland Legation (London), April 21, 1923: "A number of complaints having been made recently regarding the manner in which orders for bulbs and flowers sent to firms in Holland have been executed, the Netherland Legation desires to warn the British public against sending such orders either prepaid or cash on delivery, to any dealer of whom they have not satisfactory experience, or whose references they have not been able to obtain and verify. The great majority of Dutch bulb exporters are trustworthy, but there are several among those who send price lists to private persons in the United Kingdom who are unreliable. It is, therefore, advisable to avoid dealings with any except well known firms." For the information of our readers, we add that when the produce is unsatisfactory, a British firm may be sued in our own courts, whereas a Dutch firm can only be sued in a Dutch Court—a matter of considerable trouble and expense.

A Hampshire correspondent writes: "I have used Semanthracite for the past two seasons with great success, and find it ranks next to anthracite for general heating. As supplied by Messrs Webb Bros., Battledown, Cheltenham, Semanthracite is far superior to either hard furnace or gas coke, or steam coal, for horticultural purposes, as it is cleaner burning, does not clinker, and makes very little ash, while it is far more reasonable in price. I have two Rochford tubular boilers, 9 feet 6 inches long, and there is just over 4,000 feet run of four-inch pipes in my eight greenhouses, each one hundred feet by eighteen feet and twelve feet high. My experience of Semanthracite is that it is the best fuel to use, failing anthracite. You are at liberty to make what use you like of this letter, if it is of interest to readers of your valuable paper."

REPLIES.

In answer to inquiry by *J. A. K.* in the *Gard. Chron.* of May 5, I would remind him that mice and rats destroy bulbs as readily as pheasants do, but no matter which of these causes the trouble a wineglassful of paraffin or creosote well mixed with two gallons of water, and the beds well watered with the mixture will soon stop their depredations. This mixture will not injure the bulbs, but the beds must be watered weekly with it, as the odour as well as the flavour will by that time be quite lost. Guys made to represent a man and placed at intervals would be likely to keep the pheasants away, but they would have greater effect if something was arranged to make a continual movement and noise, such as a light strip of tin placed so as to strike some hard substance during the smallest breeze. *W. Miller, Mill House, Warley, Essex.*

J. A. K. should have the pheasants shot. If this drastic treatment is not possible—pheasants destroy material far beyond their value—try deep planting. But there would need to be a period between now and then when no Tulips were grown, so that the birds may lose their taste for the bulbs. Many years ago a large collection here was destroyed similarly, so I can sympathise with *J. A. K.* With regard to deep planting, it is pursued here with various crops—Peas and Beans, for instance—and I think were *J. A. K.* to set the bulbs 7 or 8 inches under the surface and apply dressings of soot, that would have the desired effect. For a few years past pheasants have destroyed quantities of blooms of Narcissus ornatus outside the garden proper. This year those inside have also been eaten and trumpet sorts have been picked for the first time. Pheasants are a strange folk! Some seasons they feed on Winter Broccoli, and last year they reduced Cabbages to stumps. This year neither of these crops has been touched to any extent. I have known them to destroy Rhubarb; and once they commence on hardy fruit it is impossible to stop them. The only way to save Strawberries is to net them before maturity or while the fruit is still green. *R. P. Brotherston.*

ANSWERS TO CORRESPONDENTS.

Adiantum pedatum Klondike: *E. G. E.* We believe you will be able to obtain Adiantum pedatum Klondike from Mr. Amos Perry, Hardy Plant Farm, Enfield, who specialises in hardy Ferns.

Ampelopsis Veitchii: *P. E. C.* This climber nearly always fails to cling to a painted surface, as the paint kills the young root-like tendrils (hausorium), which cling to the wall or other surface, though the plant itself usually suffers no damage. Wire netting attached to the wall is a suitable medium for the plant to cling to, and will not be apparent when the plant is covered with its foliage.

Arum Lilies: *T. S.* There is no reason why your Richardias (Arum Lilies) should not flower satisfactorily, as these plants usually flower quite well, either when planted out-of-doors during the summer, or grown continuously in pots. If the plants are weak it is best to plant them out in a well-manured trench, lifting and potting them in the autumn. They are gross feeders, and should be potted in a very rich, free compost. When well established in their pots they may be fed liberally with dilute liquid manure and soot water. Guano is also an excellent manure for these plants. When well established in their pots they need almost unlimited quantities of water at the roots, as they are more or less aquatic plants.

Corrections: *Narcissus Dainty Maid.* Owing to a clerical error Mr. Watts was credited with an Award of Merit for Narcissus Dainty Maid on the occasion of the London Daffodil show (see p. 220). We are informed that the award should have been credited to Messrs. R. H. Bath, Ltd., Floral Farms, Wisbech.—*Cerasus Ukon.* Mr. R. C. Notcutt writes:—"I am very sorry that owing to an accident the new Cherry, for which I got an Award of Merit on Tuesday, April 24, appears in your issue of the 28th as Hukon instead of Ukon. If you could possibly correct this in another issue I should be greatly obliged." (We readily publish Mr. Notcutt's note on this subject, but we cannot accept any blame for "the accident."—Eds.)

Cultivation of Celeriac: *E. K.* The seed of this vegetable should be sown about the middle of March in gentle warmth, and the seedlings pricked off into boxes and hardened off ready for planting permanently in May. Rich soil is essential to produce good roots: the surface should be raked finely, and the young plants put out at 18 inches apart, allowing the same distance between the rows. Keep the ground clean by hoeing between the plants, and water the latter copiously in dry weather. When the foliage turns yellow in the autumn, with frost, lift the roots and store them in fine soil or sand in moderately dry conditions, when they will keep good for a considerable time. The edible portion is the thick root, and the small roots may be trimmed off when lifted. Celeriac is not used so extensively as a vegetable in this country as on the Continent.

Failure with Muscat Grapes.—*P. J. M.* The Muscat of Alexandria vines are suffering from a bad attack of mildew. Last season this complaint was very prevalent on account of the cold, wet and sunless weather. Mildew on vines spreads very rapidly, and where the vines have been attacked by the disease the previous season extra care should be taken in watering the roots and ventilating the vinery in cold weather. If the water pipes are kept just warm in damp, dull weather this is generally sufficient to keep the atmosphere sweet and counteract the evil effects of sudden changes in the weather. Mildew generally follows careless watering and ventilating during the vine's early stages of growth, and if allowed to spread is difficult to eradicate. Wash the vines, when they are dormant, with Gishurst compound, and coat the walls with hot lime-wash mixed with sulphur. Dust the leaves and bunches with flowers of sulphur on the first signs of mildew, and pay careful attention to the general management of the house.

Gooseberry Berries Eaten by an Insect: *H. S. T.* There is little doubt that the embryo Gooseberry fruits are eaten by grey slugs, which are known to eat the base of the calyx in this way. As they work at night they are not seen or suspected. Spreading one of the proprietary soil fumigants under the bushes should act as a deterrent to the slugs, or you might spray the bushes with a strong-smelling wash, such as lime-sulphur, at summer strength. Most of the damaged blooms will drop and set no fruit.

Grubs Attacking Seedlings: *D. R.* The "caterpillars" sent are the larvae of the Daddy Longlegs, commonly called "Leather Jackets," owing to their tough skin. When present in numbers they are capable of doing extensive damage, both in frames or in the open gardens. Their natural food is grass roots and decaying vegetation generally, and in this case almost certainly the source may be found in the rotted leaves. When making such heaps in the autumn care should be taken that they are not made an ovipositing place for the adult fly. To prevent this the heaps could be covered with a layer of lime, so that weeds would not grow on the surface or in case lime is not wanted the heaps should be occasionally weeded during the growing season. Grass especially must be destroyed, as the habit of the female is to deposit her eggs on grass roots. In the case of heaps already attacked it will be necessary to riddle the leaf compost through a quarter-inch sieve. As a temporary expedient one of the proprietary soil fumigants containing naphthalin should be pricked into the soil where seedlings ar growing, in accordance with the manufacturers' instructions.

Lime Sulphur: *Puzzled.* You should not mi soap with any wash containing lime, becaus the soap curdles and blocks the sprayin nozzle. If you wish to use lime-sulphur wash which is a fungicide, buy it ready prepared as the factory-boiled liquid is better tha any that can be made at home.

Musk Melon or Canteloupe: *P. G. B.* The Canteloupe Melons are distinguished fron the lace or netted Melons by the surfac being marked in sections (as in a peelec Orange); they are also in general more hard and amenable to frame culture; some peopl consider them superior in flavour. There ar many varieties, some earlier in season tha others, but we have not met with th particular one mentioned. The seeds shoul be sown at once in warmth in a pan, o singly in pots; when the seed leaves are wel formed the seedlings may be potted o singly, say in 5-inch pots; there they ma remain till the growth has made four or fiv leaves, when they should be pinched to th third leaf, two eyes only being left, an planted out in a frame. A second pinchin is usually done, to produce fruit-flowers, a two or three leaves. Until well establishe keep the frame fairly moist with the ligh closed, though in general not much ventil tion is needed. Fertilisation is needed f the blossom. It is unlikely that the summ season in England would be suitable for the Melons in the open. In a Melon house th could be treated like the laced Melons ar trained upwards. Canteloupes should be mo grown in this country, as in frames they ne little attention. An article on this subje appeared in *Gard. Chron.*, April 1, 1916, 181.

Manure for Pelargoniums: *D.* You m feed your Pelargoniums with dilute liqu farmyard manure or soot water. Or, if mo convenient, with any good artificial manur such as Clay's Fertilizer, used according directions. Guano is also one of the be all-round manures, and a little may sprinkled on the top of the soil twice a we and watered in, or one ounce may be mix in one gallon of water for watering. Nev apply fertilisers when the plants are dry the roots, but water the soil with clear wat first.

Names of Plants: *J. S.* 1, Picea excels 2, P. alba; 3, P. ajanensis; 4 and 9, Pseu tsuga Douglasii; and 8, Abies Nordmannian 6, Abies nobilis; 7. Picea orientalis; 10. nigra; 11, Abies concolor; 12, Abies nobi var. glauca.—*L. A. H.* Ranunculus Ficar

Old Corms of Cyclamens: *T. S.* As yo Cyclamens pass out of flower they should stood in cold frames, gradually withholdi water as the foliage dies down. The pla may then be kept quite dry for a few wee Towards the end of July or beginning August they should be shaken out of th receptacles and repotted in pots of a suita size. They should then be stood in a c frame, watering them very carefully un they have made fresh roots, and have start to grow. They may also be planted out i bed of prepared soil in a cold frame, fr which they may be lifted during the autu and placed in pots. This latter method oft proves more successful than when they grown in pots.

Tomatos Diseased: *F. B.* The fruits suffering from "blossom-end" rot, which the result of a sudden check to the pla during the growing period. If plants growing rapidly and the tissues are soft, brown spot on the fruits may be produ by giving the roots too little water. As state that the Tomatos are grown in p it is probable that you have kept them dry. Careful attention to watering, tak care not to allow the pots to dry out, prevent the occurrence of this malady.

Communications Received.—E. C.—E. S. G.—D W. H.—L. H.—C. W.—R. H. H.—A. M.—L. McC —R. B. B.—J. H.—J. P.—W. J. B.—H. D.

THE
ardeners' Chronicle
o. 1899.—*SATURDAY, MAY* 19, 1923.

CONTENTS.

le stocks from oolly aphis, im- unity of 267
bow, Mr. Joseph .. 268
ks, notices of—
lowering plants of South Africa .. 268
garden, the—
uschkinias 271
ilips.. 271
ipanula Rapunculus 277
ago, beautifying and earing up the city of 267
ysanthemums in rance, the best .. 268
essions of a novice, pre 273
ase resistance and a pper hypothesis .. 276
child lecture, the .. 267
m memorial prize .. 267
rdeners' Chronicle" venty-five years ago 269
dy flower border—
rodium chamaedryoides 272
eranium atlanticum 272
um rivale Leonard's var. 272
e coloured Astilbes 272
and, Horticulture in 268
or plants—
owallia speciosa major 272
Indoor Plants. cont.
Solanum Wendlandii 272
Streptocarpus .. 272
Kirstenbosch, new South African plants at .. 268
Lilies 274
Linnean Society's anniversary meeting .. 268
Parks and open spaces, public 273
Peas 277
Polyanthus, reversion in 269
Royal Academy, floral pictures at the .. 267
Rubber 277
Societies—
Deeside Field Club .. 279
Horticultural Club .. 277
National Tulip .. 278
Royal Horticultural .. 279
Stones, prevention of decay in building .. 267
Sulphur and Black Currant mite 268
Town refuse 267
Trees and shrubs—
A fine Amelanchier in a Cumberland garden.. 269
Cytisus purpureus incarnatus 269
Vegetable garden—
Beet 276
Week's work, the .. 270

ILLUSTRATIONS.

ow, Mr. Joseph, portrait of 268
us Dorthy Walpole 269
Douglasiana var. Merton 271
vaddy river, the headquarters of the 278
m Stewartianum 275 ; L. Tenii 274
i monastery, on a limestone plateau east of the Yangtze 277
atioda Naomi 272
David Lloyd George 273
wells at Tsa-ka-lo, on the Mekong river .. 277

RAGE MEAN TEMPERATURE for the ensuing week leduced from observations during the last fifty ears at Greenwich, 53.1°.

IAL TEMPERATURE :—

ardeners' Chronicle Office, 5, Tavistock Street, ovent Garden, London, Wednesday, May 16, 0 a.m.: Bar. 29.7, temp. 46°. Weather—Cold rain.

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nmunity of pple Stocks from oolly Aphis.

Attacks of Woolly Aphis on Apple although susceptible of control in gardens are a serious and not easily combated source of loss to the orchardist. It is therefore ortant that efforts should be made to ertain whether it is possible to find stocks ich are resistant to the disease. For, as vell known, Woolly Aphis occurs both on stem and the roots of Apple trees, and iously, attack on the root is more diffi- t to deal with than attack on the stem. estigations into this subject are being de by Mr. Staniland, of the Department Entomology, of the Imperial College of ence, in association with the East Malling uit Research Station. Although the in- ry is not yet complete, it has already led useful results. A comprehensive test of the various Paradise stocks isolated at East Malling Station shows that none of m is immune. Among the most sus- tible of these stocks so far as top is cerned are broad-leaved English Paradise d Doucin, two of the stocks in most nmon use. Among the less susceptible is ench Paradise, and the only dwarfing stock "tops" of which have proved resistant an unnamed, layered Crab stock (H) of ench origin. With respect to resistance ow ground, this same stock and Type I. of the East Malling dwarfing stocks ne are resistant. Although broad-leaved radise and Doucin are susceptible, it is teworthy that their roots offer greater resistance than do their stems to infection by Woolly Aphis.* Among Crab (seedling free) stocks, no less than among dwarfing (layered) stocks, the degree of resistance varies. Nevertheless of one hundred tested four were found to be either immune or highly resistant. All these were wildlings and present appearances very similar to the layered Crab (H) stock referred to previously, which also is resistant. Tests with Northern Spy confirm the conclusion reached by previous observers that it is immune from attack by Woolly Aphis. Unfortunately, however, there are reasons why it is unlikely that this stock will become of general use in this country. Nevertheless the author and his colleagues do not intend to neglect the possibility of making use of this immune variety. Experiments are already in progress in which Northern Spy has been crossed with the Doucin stock, and the first generation has already been raised, and is ready for testing. Should immunity prove a dominant character and should the hybrid possess the other qualities which go to the making of a useful stock, a great advance will have been made. The nature of immunity is also under investigation. In the case of resistance to Woolly Aphis, as in that of resistance to other diseases, this quality appears to be unrelated with vigour or dwarfness, and to bear no relation with type of root system — whether fibrous or coarse. This problem is, however, engaging the attention of Mr. Staniland, and it is greatly to be hoped that his researches will be no less successful in resolving the scientific problem of the nature of immunity than in providing—as they promise to do—an Apple stock at once of general utility and immune from attack by Woolly Aphis.

Beautifying and Clearing up the City of Chicago.—Three days after he was installed as Mayor of Chicago, Mr. Wm. E. Dever issued a proclamation ordering the time from April 23 to May 5 as a period in which the city should be cleared up and attempts made to beautify it. His action was endorsed by the Association of Commerce, by the Board of Education, and many civic and industrial clubs. The particular part of the proclamation to which we draw attention was as follows : "Every citizen should show his personal pride, as well as civic pride, by cleaning up his house and property so as to avoid fire risk, to clean up his front and back yard, to paint his premises, to abolish fly and mosquito breeding places, to help clean up vacant lots, to make flower and vegetable gardens, plant grass seed, shrubs and trees, all of which will tend to increase the healthfulness of the citizens, as well as increasing the beauty of our city surroundings." We admire the pluck of the Mayor of Chicago, and endorse his action, but we suggest that a little editing would have improved the style and force of his proclamation.

Town Refuse.—According to the Ministry of Agriculture, town refuse might be put to better use than burning, by converting it into a fertiliser. It is estimated that 10,000,000 tons per annum of refuse is produced in England and Wales, the production of London alone amounting to 1,500,000 tons yearly. The material is valuable for adding to soils of a heavy nature. as it improves the texture of such ground, and any manurial value it may have is to be attributed to the animal or vegetable matter present. Inspections of samples during the past season show that the winter delivery contained a larger percentage of cinders and a smaller percentage of animal and vegetable matter than the summer deliveries, and hence the latter have a rather higher value to the cultivator. Dressings of about ten tons per acre have proved very useful on heavy land for root crops, Cabbages, etc. As compared with stable manure at 12s. per ton, it is estimated that town refuse would be worth about 6s. per ton. In some of the northern towns, it is found possible to add a considerable amount of night soil in addition to street sweepings, cattle market manure, slaughter house refuse and stable manure, and this type of refuse forms an excellent fertiliser, containing one or more per cent. of nitrogen.

Prevention of Decay in Building Stones.—The question of the deterioration of stonework in buildings is a matter of general economic importance, but in the cases of historic buildings and ancient monuments, prevention of the serious decay and gradual demolition of tooled surfaces and main structures constitutes a special problem which has engaged the attention of many investigators for a considerable time without, however, any generally satisfactory solution. The investigation involved is very complex and needs the help of wide scientific knowledge. Accordingly, it has been decided to set up under the Department of Scientific and Industrial Research a special committee of the Building Research Board to report on the best methods by which decay in building stones, especially in ancient structures, may be prevented or arrested. The chairman of the committee will be Sir Aston Webb, and the other members will be Mr. R. J. Allison, Professor C. H. Desch, F.R.S., Mr. A. W. Heasman, Mr. J. A. Howe, Sir Herbert Jackson, F.R.S., Dr. Alexander Scott, F.R.S., and Mr. H. O. Weller, M.I.C.E. All communications on this subject should be addressed to the Secretary, Department of Scientific and Industrial Research, 16, Old Queen Street, S.W.1.

Fream Memorial Prize.—The Fream Memorial Prize, which is annually awarded by the Ministry of Agriculture and Fisheries to the candidate who obtains the highest marks in the examination for the National Diploma in Agriculture, has been won this year by Mr. Douglas H. Findlay, a student of Glasgow University and the West of Scotland Agricultural College. The value of the prize in 1923 is about £17 10s., which is devoted to the purchase of books.

The Fairchild Lecture.—The Master and Wardens of the Worshipful Company of Gardeners, being desirous of continuing the historical connection of the Company with Thomas Fairchild's lecture, which is delivered annually at Shoreditch Parish Church, have made arrangements for the attendance of the Company in state to hear the lecture delivered by the Rev. Ernest W. Barnes, D.Sc., Canon of Westminster, on the Wednesday in Whitsun week, the 23rd inst., at 5 p.m. The members of the Company and others will assemble in the Church Room, adjoining Shoreditch Church, at 4.45 p.m., where they will be met by the vicar, the Rev. F. E. Birch, and enter the church in procession.

Floral Pictures at the Royal Academy.—Flower pictures are not well represented this year at the Royal Academy, the redeeming point being, that the styles of floral art are most varied. One lifelike and convincing picture is the painting by Melton Fisher—showing masses of Paeonies of cream and pink shades, grouped in glass vases, and with the colours well arranged. Commencing with the first gallery, No. 4 claims attention—a glowing picture by Davis Richter, with pottery of various tones, and French Anemones. The next flower study is one of Roses (67) —a beautifully executed group in a glass vase, against an old Chinese screen. No 76 is a large painting of a London flower girl, the blooms in her basket being wonderfully brilliant —clusters of Marigolds, Wallflowers, Cinerarias, Narcissus and Lilac. No. 86, by Ruth Latter, is a lovely work of Delphiniums, Campanulas and Erigeron, in an ornamental white vase; these are pictured on a window seat with plenty of sunshine, and a view of green trees through the curtains. Near this, is a collection of blooms grouped and painted in the style of the old Dutch masters. An Oriental effect is gained in No. 103, by a highly decorative vase, holding Tulips and Laburnum, with a Chinese plaque as background. No. 200 is a very clean study of a group of Roses, Campanulas and Anchusas, reflected in a mirror. A good out-of-door effect is gained in a field of Gorse, in No. 207. A child carrying a bowl of bright flowers is a pleasing work, and a large picture of glowing colours, red flowers in a yellow pottery vase, Apples and Oranges, and blue drapery, makes a striking painting, in No. 308. A few flowers are introduced into a tea-table study in No. 321, and close by is a rich picture of Hydrangeas, in combination with foreign pottery, a Chinese mat, and a glittering plaque. A flower shop comes next, showing girls at work in an interior, arranging bowls and vases of Lilies, Fuchsias, Azaleas, Cinerarias, etc. Smaller pictures in oils show a group of African Marigolds, Stocks (very impressionist, on black ground), and a flat study of Tulips, Anemones and Narcissus. No. 438 is a riot of colour, with fruit in the foreground, and then is displayed a showy group of spring flowers, with mauvy blue background, and farther on, an interior with pierced silver tray containing Peaches, and a china epergne with Grapes, also a flat impression of Carnations, Anemones, etc., in a blue vase, on blue check cloth. A charming study of single Stocks, against a muslin curtain, is bright and sparkling. Mr. Hayward has one of his little gems in "Sloes and Snowberries," and E. Wilkinson a charming little picture of Polyanthuses and Violets in a glass mug. There is not much to record in the water-colour room—a miniature of Marigolds by Mary Perrott; two wet studies of Hydrangeas and Mountain Clematis, by James Gray; a group of Carnations in a tall-stemmed vase, and Honeysuckle against a very blue ground. There is also a delightful picture of a garden with Hollyhocks, Phloxes, etc., an old blue gate, a lovely lawn and some Yew trees.

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* "The Immunity of Apple Stocks from Attacks of Woolly Aphis. Part I.: The Relative Resistance of Different Root Stocks." *Journal of Pomology and Horticultural Science.* Vol. III., No. 2, April, 1923.

Linnean Society's Anniversary Meeting.—The Anniversary Meeting of the Linnean Society of London will be held at the Society's rooms, Burlington House, Piccadilly, at 5 p.m., on May 24, when the Fellows will proceed to elect the Council and officers for the ensuing year. Other business will include the presentation of the Linnean Gold Medal and the delivery of the presidential address.

Glasgow Parks Superintendency.—A sub-committee of the Parks Committee of the Glasgow Corporation has unanimously decided to recommend Mr. Edward Matthews, Assistant Parks Superintendent, to be appointed superintendent in succession to Mr. Whitton, who retires during the present month. Mr. Matthews was appointed to his present position in 1920, and was previously gardener to the Duke of Wellington, at Strathfieldsaye, and to the Dowager Countess of Wilton.

New South African Plants at Kirstenbosch.—The great interest South African horticulturists and botanists are taking in the National Gardens at Kirstenbosch is indicated in the *Annals of the Bolus Herbarium*, a periodical publication, which will be published with greater facility when the Bolus Herbarium is established at Kirstenbosch. In a recent issue Mrs. F. Bolus describes several new plants sent to Kirstenbosch by enthusiastic collectors. These are Agapanthus pendulus from Lydenburg, Transvaal; Nerine Frithii, from Riverton; Strumaria Watermeyeri and Mesembryanthemum Watermeyeri, from Nieuwoudtville; Tritonia Mathewsiana, from Graskop, Pilgrim's Rest; Mesembryanthemum Peacockiae, from near Darling; Impatiens Duthieae, from Kynsna; Watsonia Pillansii, collected by Mr. N. S. Pillans in the Montagu Pass; and Dolichos Peglerae from the Enkazini Forest in Natal, which bears trusses of pink and mauve flowers in late summer.

Sulphur and Black Currant Mite.—Wide differences of opinion exist as to the value of sulphur and lime-sulphur in the control of Black Currant Mite. Recent experiments carried out by Mr. Lees at Long Ashton Research Station appear to leave no doubt of the lethal effects of both sulphur and lime-sulphur on the mites; but the difficulty of controlling the pest by these means lies in the length of time during which the mites are migrating. In the open migration goes on during two-and-a-half or three months, and clearly no single application of a spray is likely to prove effective throughout that time. Moreover, as the leaves develop, the spray material is less likely to reach the buds. The author is of opinion that if ready means of developing a sulphur cloud could be invented, they might be successful in ridding Currants of this pest.

Mr. Joseph Benbow.—We have just been informed that Mr. Joseph Benbow is retiring from the superintendence of the famous La Mortola Gardens, Ventimiglia, about the end of June. Mr. Benbow, who is an old Kewite, has held his present post since 1903, previous to which he was gardener at Abbotsbury, near Dorchester. Founded by the late Sir Thomas Hanbury in 1867, the gardens at La Mortola soon became famous for their beauty and the wealth of sub-tropical plants grown there, and for many years now have been probably the finest and most interesting gardens on the Continent. Since the death of Sir Thomas they have been maintained in their old splendour by his son, Mr. Cecil Hanbury, to whom, and to Mr. Benbow, the gratitude of thousands annually who visit them, is due. Mr. Benbow, who retires on a pension, is coming to live in England, having been generously furnished with a house by Mr. Hanbury on his estate near Dorchester. He will be succeeded at La Mortola by his present assistant, Lieut. S. McLeod Braggins, also an old Kewite.

MR. JOSEPH BENBOW.

Flowering Plants of South Africa.—The issue for April, 1923, being No. 10, Vol. 3, of the *Flowering Plants of South Africa*, contains illustrations and descriptions of ten plants. Lachenalia Roodeae, tab. 91, is a very ornamental species, the inflorescence forming a many-flowered spike of purplish flowers with exerted stamens. The plant is said to be common in the Van Rhynsdorp district; it is near to, but distinct from, L. carnosa, Baker. Brunia Stokoei, tab. 92, is a plant of very curious appearance, the stems and foliage suggesting a Conifer. The flowers are produced in globose heads of small reddish flowers. The Bruniaceae comprise about fifty species, all confined to the south-western portion of the Cape Province. Hoodia Bainii, tab. 93, is a showy Asclepiad with glaucous-blue, succulent stems furnished with prickles, and the stems bear at their apices large yellow blooms with a dark corona standing out in sharp relief in the middle of the saucer-shaped corolla. In common with those of most members of this genus, the flowers have a di
agreeable odour. Tritonia Mathewsiana, ta
94, differs from all other members of t
Iridaceae family in having brown spathe valve
The plant has the long, narrow, characterist
leaves of the genus, and produces racemose i
florescences bearing orange-red flowers. Leuc
spermum cordatum, tab. 95, is a decumbe
member of the Proteaceae with long, trailin
branches bearing very pointedly corda
foliage with a reddish margin. The flow
heads are solitary and not very orn
mental. Aloe saponaria, tab. 96, is an o
plant in cultivation; it was introduced in
Europe in the eighteenth century. The colo
of the flowers varies; there are three well define
varieties of the plant, with salmon-coloured, r
and pale lemon-yellow flowers respectivel
Synnotia Metelerkampiae, tab. 97, is a ve
charming Irid, with violet-blue flowers. It form
a glabrous herb some 16-25 cm. high, and pr
duces a corm. The racemose inflorescence bea
some nine to twelve almost erect flowers wi
long tubes, and lip marked with reddish-orang
Chrysophyllum magalismontanum, tab. 98, is
very successful colour reproduction, the pla
showing foliage and fruits, together with flor
details. The fruits are oval, about the size
Bullaces. Cyrtanthus helictus, tab. 99, is
bulbous plant with narrow, spirally twist
leaves, and a solitary inflorescence. The bloo
is tubular with faint stripings of rose on a whi
ground. Protea Stokoei, tab. 100, is allied to
speciosa, but differs in certain characters, t
chief of which are the long hairs on the invol
cral bracts forming a fringe or beard. T
plant is a spreading bush about six feet hig

"Horticulture in Holland."—The publicati
issued by Bendien's International Commerc
Intelligence Bureau, Amsterdam, under t
title of *Horticulture in Holland*, is obviou
an advertising medium, but, nevertheless, c
tains much that is of particular interest
bulb importers. Dr. W. J. Franck deals
some length with the work of the Dutch Se
Testing Station at Wageningen, and there
a lengthy article on the Phytopathologi
service in the Netherlands. Dr. W. F. We
discusses the plant export trade in Holla
with particular reference to the Boskoop d
trict; he states that in 1921 the exports
foreign countries amounted to 12,989 tons
plants. The concluding article is one on Du
bulbs by Mr. W. van der Laan, secretary
the Dutch Bulb Growers' Association. T
whole publication is freely illustrated.

The Best Chrysanthemums in France.—T
French National Horticultural Society h
appointed a Committee of its members to
each year into the question of the b
Chrysanthemums, and a report is made af
careful observation of the habits of growth
the varieties under review. A list has be
made each year from 1919, and observatio
taken in the year 1922 have resulted in t
following six varieties being chosen as
best for French gardens:—Andre Rigol
Chrysanthémiste Paul Oudot, Louisa Pock
Majestic, Mrs. Geo. Monro and Vice-Presid
Lionnet.

Local Horticultural Societies.—The Saff
Walden Horticultural Society has recen
been revived. The Mayor of Saffron Wald
Mr. D. Miller, has been elected chairman,
a committee appointed, and an exhibition
been arranged for Thursday, July 26, to be h
by permission of C. W. Rolfe, Esq., in
grounds of Farmadine. Money prizes to
value of £125 are offered, and there are n
bers of special prizes, including two cups offe
by Messrs. C. Engelmann and J. Vert and S
respectively. Prizes of £10 and £5 respecti
are offered for the best exhibit of flowers i
class open to the trade outside the borough
Saffron Walden.—Ulster Horticultural Soc
has arranged to hold a show at the Bot
Gardens, Belfast, at the end of August or e
in September. A series of lectures has b
arranged by the Society, and the second of
series was delivered by Mr. Edward Cowdy
April 11, his subject being "The Swee
and How to Grow it."

Dutch Bulbs in the Tuileries Gardens.—isitors to the Tuileries Gardens, in Paris, ave enjoyed this spring a lovely display of owering bulbs, 200,000 of which were prented to the gardens by an association of utch Bulb Growers. The bulbs—Tulips and yacinths—were offered to the French Governent through the Dutch Government, and were anted last autumn by two Dutch hortilturists in that part of the gardens traversed y the Avenue Paul Déroulède. In order to reclude the idea that any direct advertiseent was intended on the part of the Dutch ulb growers, no encouragement has been given French amateur horticulturists to attempt to btain supplies of bulbs direct from Holland. evertheless, the growers naturally hope that e beautiful display they have provided will ncourage the planting of bulbs in masses in rench gardens and their purchase through e medium of French bulb merchants.

Reversion in Polyanthus.—A correspondent ends an inflorescence bearing both coloured olyanthus-like flowers and yellow flowers of rimrose colour; a rare occurrence. Nevertheess similar sports are known. For example, otatos with coloured flesh may give rise to lants bearing white-fleshed tubers. Such henomena are sometimes regarded as examples f vegetative segregation, but it would seem ore probable—having regard to the fact that olour only is the character affected—that the gents which give rise in the plant to flower olour are discrete bodies which undergo diviion in the cells of the plant at a rate which ay be independent of that of cell divisions. n this view it is to be inferred that the anteedents of pigment in the cell or cell group which by its division gave rise to a yellow lower divided irregularly so that none of them assed into the cells of the tissues from which he corolla arises.

Appointments for the Ensuing Week.—Thursday, May 24: Royal Botanic Society's meeting. Friday, May 25: French National Horticultural Society's show at Cours-la-Reine, Paris (ten days).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Expeditious Culture of the Manchester Hero Cucumber.*—From two seeds sent me under this name I grew two plants, and on March 29, I made a bed and planted them out in a small two-light pit, having metallic lights. On April 19, I cut three fine Cucumbers; one sixteen inches long, another fourteen, and one thirteen. On April 26, I cut one eighteen inches long; on the 27th do., one thirteen inches long; and on the 29th do., seven Cucumbers, in order to strengthen the plants, measuring altogether four feet two inches. On May 2, I cut one fruit twelve inches long, and one fourteen inches. The plants were turned out of five inch pots; they showed fruit at the time, and swelled at the length of three or four inches. I cut them off, thinking they would weaken the plants. The pit is eight feet by four-and-a-half, and close boarded three feet from the lights, to prevent steam from entering. I placed rough boards about four inches above the close boards, and on the rough boards I put about fifteen inches of dung; I then soiled the bed, and turned out the plants without waiting for the soil to get warm. The pit is worked by linings, and the soil was warm by the morning; the pit stands on piers about three-and-a-half feet high. I once gained a first prize for Cucumbers in the beginning of April, and a short time after, I threw the plants away, and planted out Melons, which gained a first prize on June 30, at Cirencester. I adopted the same plan with my Cucumbers, throwing away plants that had been growing all the winter; I then took the soil and dung out of the pit and put in fresh, planted out the plants, and the above is the result. I have used the pit for nearly twenty years, and have found it answer well in every respect; it is also an excellent place for striking cuttings in, plunged in sawdust or coal-ashes, near the glass. *Thomas Pollington, Bradwell Grove, Oxfordshire, May* 5. *Gard. Chron., May* 13, 1848.

TREES AND SHRUBS.

A FINE AMELANCHIER IN A CUMBERLAND GARDEN.

The June-berry (Amelanchier canadensis) is perhaps not so much planted in these days as it deserves. It has, of course, to compete with an ever increasing number of newer Rosaceous flowering trees and shrubs. In its small state it may not be very striking, but it may make quite an imposing, wide-spreading, flowering tree. Surely Nicholson, in his *Dictionary of Gardening*, is in error in limiting its height to 6-8 feet!

The tree which is the subject of this note is about 22 feet high, and its branches extend outwards to a circumference of 30 or more yards. It is probably about 100 years old, and is now beginning to show signs of failing vigour. It is growing on a lawn at an elevation of 200 feet and eight miles inland from the Solway Firth.

The June-berry is especially attractive at two seasons of the year—in spring, when it never fails to be a sheet of bloom, and in autumn, when it glows with crimson. The blossom is accompanied by the bronzy-red young foliage, which for a time after the petals have fallen renders the tree strikingly beautiful. In its vernal combination of white and bronze it is in some degree matched by our wild Cherry, but the two trees do not compete with one another, as the Amelanchier flowers two or three weeks earlier, usually in Cumberland about the middle of April. It also, like the Cherry, reddens in autumn, but its tints are more vivid and telling. The small purple-red fruits it bears cannot be regarded as a conspicuous feature, but they are highly flavoured and much sought after by birds.

Considering that this tree is a native of the Atlantic side of North America and so belongs to a marked Continental climate, it is a little surprising that it should grow so well in this part of England. Not only does it flourish, but it is capable of naturalising itself to some extent, for a few plants have sprung up in the adjoining hedges and thickets, evidently from seeds carried by birds from this tree or its companion. There happen to be two specimens in this garden, probably planted at the same time. Hence if cross-pollination be necessary for the setting of fruit, it can take place. *J. P. Carlisle.*

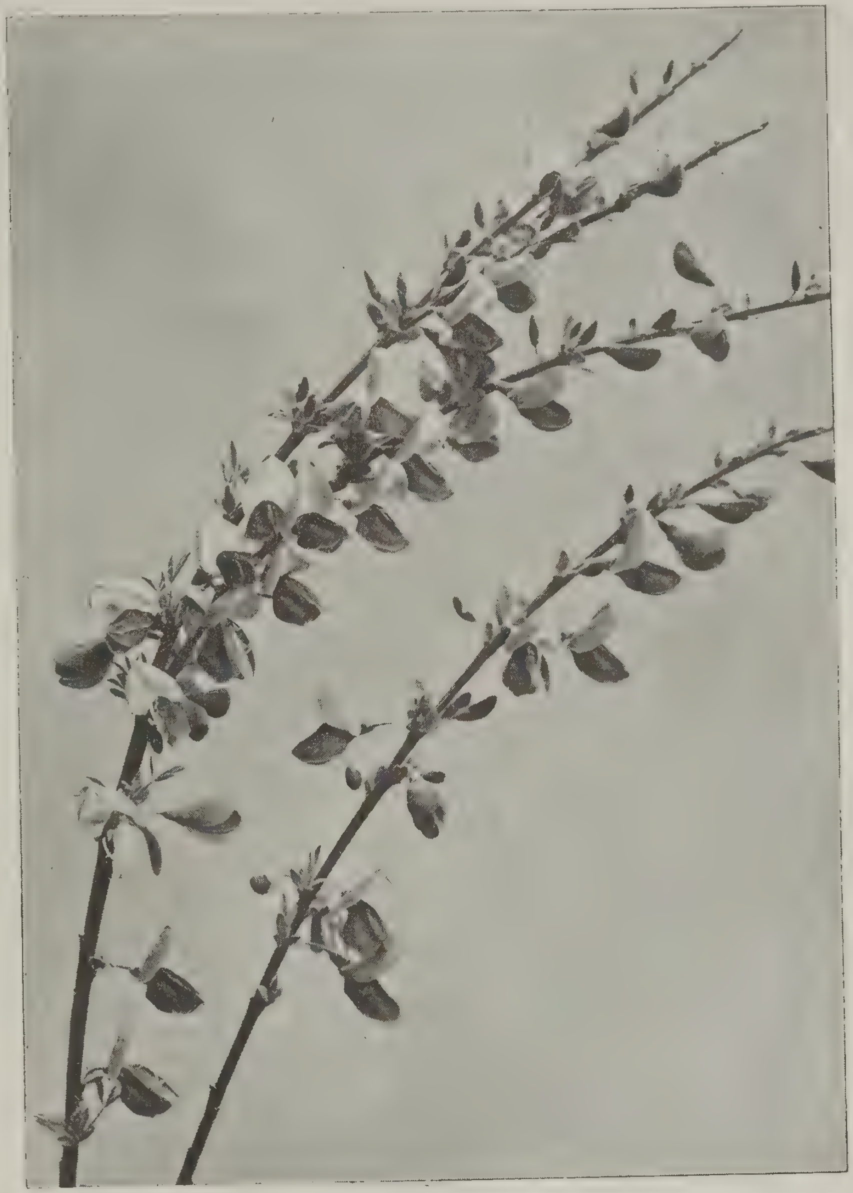

FIG. 124.—CYTISUS DOROTHY WALPOLE: R.H.S. AWARD OF MERIT, MAY 8. (SEE PAGE 264).

CYTISUS PURPUREUS INCARNATUS.

Mr. A. T. Johnson seems to imply (p. 230) that this Broom is not so permanent as the others, *i.e.*, C. purpureus and C. p. albus. I grew the three somewhat closely together for a long number of years, and found no difference in their duration either in flower or in life. I am wondering if Mr. Johnson's plants of C. incarnatus were on their own roots or grafted or budded. I like C. p. incarnatus both for its colour and habit. *S. Arnott.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Phalænopsis.—These handsome Orchids commence to make new roots at this season, and will therefore require attention. Whatever kind of receptacles the plants are grown in, they should be well drained; the old material should be carefully removed, cutting away all decayed roots and cleansing those that remain by immersing them in clean, tepid rain water. Only a thin layer of clean, live Sphagnum Moss is necessary as compost, which should be made moderately firm, especially around the base of the plants. Having finished the potting, water the plants liberally with tepid rain water, allowing them then to become dry before renewing the supply. Shade the plants rather heavily after they have been disturbed at the roots. A stuffy atmosphere is harmful to these Orchids at all times; by maintaining the necessary amount of warmth, and a genial, humid atmosphere in the house, the growth will be free, healthy and strong. Even these heat-loving plants need fresh air, if strong, satisfactory growth is to be expected, and the cultivator may safely assume if the temperature of any house feels oppressive to him, it is the same to the plants.

Odontoglossum. — Odontoglossums of the grande and Insleayi section require a slightly higher temperature than that provided for O. crispum. They are best grown during the winter in the cooler end of the intermediate house, and kept comparatively dry, but during the summer they should be placed in the warmer end of the Odontoglossum house. Many of these Mexican Odontoglossums have commenced to grow afresh, and when their growths are fairly started, and before they push roots, should, if necessary, be potted. I do not recommend the practice of top dressing, for the reason that it makes the application of water to the compost most difficult, as the compost at the top will be in good condition, whilst that beneath may be sour and decomposed. These plants will succeed in similar compost to that used for other Odontoglossums having thicker leaves and roots; they are capable of withstanding more sunlight than the thin-leaved species, and the compost should be used in a coarser and rougher condition. Whilst these plants need a fair amount of direct light, the two extremes must be avoided, as too much light or too much shade will both lead to unsatisfactory growth. These Odontoglossums constitute a most useful and interesting class of plants which produce their flowers at a season when they are most acceptable. As plants of Odontoglossum Rossii majus and O. Cervantesii pass out of flower, they should also be given the necessary attention at the roots. These plants, being small in stature, are best grown in plain, shallow pans suspended from the roof rafters. In repotting them it is always advisable to remove the old parasitical back pseudo-bulbs; three or four behind each lead are sufficient to retain. Members of O. grande section are best grown in ordinary pots.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Apple Scab.—This is one of the commonest diseases of the Apple, but is easily combated, for which reason compulsory measures are advised, and should be dealt with by local authorities, for it is unfair that growers, either commercial or private, should be put to yearly expense and probably loss because their neighbours fail to deal with the pest. Bordeaux mixture is fairly cheap to make, and two applications, one immediately after the blossom has fallen, and a second when the fruit has well developed, will probably prove sufficient. The disease is easily detected by the appearance of brown, sooty blotches on the leaves. If the disease was present the previous year, it is very necessary to give the first spraying the following season.

Strawberry Beds.—Strawberry plants need considerable attention at this season to ensure a good crop. A liberal dressing of soot, applied before the blossoms open, will be helpful to the plants. Besides acting as a fertiliser, the soot, in conjunction with constant hoeing of the soil, will serve to keep slugs and other pests in check.

Wall Trees.—Following the reduction of growth on wall fruit trees, thinning of the fruits will be necessary, more particularly in the cases of Peaches and Nectarines. In determining the crop a tree should carry, it is a general practice to allow one fruit to every square foot of surface covered by the tree.

Mulching.—It is to be recommended that trees, and especially those growing on hillsides and in light land, should be mulched with stable manure where possible. Failing this, deep hoeing of the soil should be done as frequently as possible to obtain a fine tilth to the depth of one inch. To merely scratch over the surface is useless beyond the suppression of weeds.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Primula verticillata.—Seed of this fine species should be sown during May, as it requires a rather long season to produce really good plants. This Primula succeeds under similar treatment to that afforded the sinensis varieties. It is, apart from its individual merits, interesting as being one of the parents of Primula kewensis.

Cineraria.—Where Cinerarias are required to flower early, a little seed should be sown at this time; for decorative purposes the intermediate types should be selected in preference to the large flowered, so-called florists' varieties. The intermediate varieties include some fine blue-flowered strains, which come true from seed. Cinerarias need cool, moist conditions, and during the summer are best grown in cold frames. They are very subject to attacks of green fly, which must be guarded against by lightly fumigating the house or frame in which they are grown. By raising successional batches plants may be had in flower over a long period.

Euphorbia fulgens.—This plant should now be propagated by means of cuttings made from young side shoots. Make the cuttings with a very thin portion of the old wood when the shoots are about 3 inches long. Insert the cuttings in pots containing sandy soil, and plunge the pots in a warm propagating case with plenty of bottom heat, taking care that the cuttings are never allowed to flag. Many cultivators find a difficulty in rooting this plant from young cuttings. If the old stems are cut into pieces about 3 inches long, there should be little difficulty in rooting them successfully; although I do not consider that plants raised in this way ever grow with the same freedom as those raised from young cuttings. This plant is by no means easy to cultivate in pots, and requires to be watered carefully at all times. It is seen at its best when it is planted out on a raised bed in a low house, and the long, slender shoots tied to wires under the roof-glass.

Winter-flowering Begonias.—This type of Begonia, as represented by such fine varieties as Optima, Exquisite and Mrs. Heal, should be propagated as suitable shoots for use as cuttings become available. The cuttings may be inserted when they are three to four inches in length. They root readily in a warm case, and are best inserted singly in small pots in a light, sandy compost. When rooted, grow the plants on in a house having an intermediate temperature.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

China Asters.—A second or late sowing of this annual made now will furnish plants suitable for supplying cut flowers until the advent of frosts. In warm and southern gardens the seeds may be sown out-of-doors, but in colder districts the sowing should be made under glass. Backward plants from this sowing will be useful, if put in pots for indoor flowering.

Autumn-sown Seedlings.—These have made excellent progress, and in some places are too thick and need thinning. A few of the surplus plants may be transplanted in bare places. This work is best done on a dull day, or after a shower.

Roses.—As the growth of Roses proceeds, it is advisable to examine the plants occasionally, with a view to keeping down the enemies which attack Roses in some degree every year, the three worst being grubs, aphis, and mildew. Many a fine Rose bloom falls a prey in its bud stage to the Rose grub, which should be sought for and destroyed by hand, a somewhat tedious business where many beds of plants have to be dealt with. Syringing with suitable specifics will help to suppress this pest, but, once the caterpillars have secluded themselves in the leaf or bud, hand-picking is the only sure remedy Green fly and mildew may be fairly successfully combated with special solutions sold for the purpose, while tobacco powder and powdered sulphur are old, valuable remedies for destroying these two foes. Any growths that may already have lost their buds may be cut back to promote the development of fresh shoots. A few weakly growths may also need removing where the plants look congested with growth, and a few buds may be taken off where they are so thickly placed as to prevent good flowers developing. Keep the surface of the beds trim and fresh-looking by an occasional use of the hoe, and see that newly planted Roses against walls or pillars are not too dry at the roots.

Flower Seeds.—Although practically all hardy perennials are amenable to increase by division, it is good practice to raise a few of them from seed from time to time to obtain fresh, strong stock and additional variety. Sow the seeds in shallow drills in the open ground, and, when the seedlings are strong enough, transplant them elsewhere as convenient. These latter remarks apply, also, to the treatment of what are usually termed biennials—Wallflowers, for example. The sowing of seeds of such plants may follow that of perennials by the end of the present month, excepting in warm, southern gardens, when nine to fourteen days later will be soon enough.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Melons.—Fruits on the earliest Melon plants will be in a more or less forward state according to the variety and the conditions under which they have been grown. It is very necessary to encourage healthy root action up to the time the fruits are ready to cut, for once the plants receive a check they seldom recover sufficiently to mature their fruits properly. To ensure this it is advisable to place a small quantity of compost over the roots when they show through the soil. The compost should be warmed to the temperature of the house. The first batch of plants will not require mulching, as the amount of sun-heat will not dry the soil as in the case of the later batches. Cracking and splitting of the fruits are brought about by an excess of humidity in the atmosphere, with a sudden rise of temperature. When the fruits commence to change colour, damping should be discontinued, as a warm, dry atmosphere is necessary to develop a rich flavour in the fruits. The common practice of drying off the plants by withholding water from the soil is wrong; afford sufficient water to keep the soil moist. The earliest plants will need very little feeding; an application of a suitable artificial manure, with one or two waterings with liquid manure, will suffice. The fruits of certain varieties of Melons separate from the stem much more readily than others; these should be closely watched and cut on the first signs of separation. Fruits of this type are best kept in the house for two or three days to mature, after being cut. Sow more seed to raise plants for succession of fruiting as circumstances may require. From seed sown now the plants should yield ripe fruits in fourteen weeks under normal conditions.

Vines.—Vineries in which the Grapes are ripening should be ventilated freely whenever the weather is suitable, for a dry, buoyant atmosphere is one of the principal factors in perfecting the colouring of the berries, other essentials being healthy root action and strong foliage. Vines which are not over-cropped will continue to develop lateral growths, and where space permits these may be left intact; gross lateral growths should, however, be pinched. Crowding of the foliage should be strictly guarded against; each leaf should be fully exposed to full light of the sun. If the vines are free from red spider and thrip, they will probably remain so until the bunches are cut, when the vines may be cleansed thoroughly. A cool night temperature tends to promote good colour in the berries. On mild nights leave the top ventilators open a little, and gradually increase the amount of ventilation as the outside temperature increases. The night temperature may range from 60° to 65°; when the temperature of the vinery during the day reaches 80° full ventilation should be given. During the period the berries are swelling and colouring the roots should be fed liberally with liquid manure; whilst an occasional application of soot water will materially assist the colouring of the berries.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Radishes.—Make a sowing of Radish about once a fortnight to maintain an unbroken supply. Choose a partially shaded border for growing Radishes from now onwards. Sow only a few drills at a time, as fresh, young roots are much the best. Net the seed against birds, and water the soil well if the weather is dry. Radishes in frames should be kept well watered or the roots will become tough.

Celery.—Celery plants raised from seed sown in February are ready for transferring to trenches prepared as advised in a previous calendar. Lightly fork the bottom of the trench, and rake the soil to obtain a fine tilth. Use a board to stand upon, and in planting work backwards. Where the trenches are made to accommodate double rows, plant the seedlings one foot apart alternately in the rows. Plant firmly, using a trowel, and water each trench with a large rosed can as it is completed. If the weather is dry, give the trench a good soaking with water every other day, and the plants will soon make good progress. Dust the tops with old soot during showery weather. Watch carefully for the Celery-leaf miner, and pick the affected parts off by hand. This pest is soon detected, as it causes the leaves to turn brown. Periodical dustings of soot will act as a preventive, and there is no finer stimulant for Celery than soot. Later batches may be put out in the trenches as they become ready. If extra fine plants are desired for early exhibitions, plant in single rows, and blanch the stems with brown paper bands tied around them as growth proceeds. Mulch the plants with half-rotted manure. By this method much better attention can be given the plants, as regards watering, etc., and no more labour is involved than by earthing up. Later batches must be earthed up to withstand the winter. Sutton's Solid White and Carter's Solid Ivory are two good early varieties.

Lettuces.—The soil about young Lettuce plants growing on Celery ridges should be kept hoed and watered, especially if they have been planted out from seedling beds in frames. The plants of outdoor sowings need thinning as soon as they are large enough to handle.

THE BULB GARDEN.

PUSCHKINIAS.

We generally meet with the pretty Puschkinias in groups of from half-a-dozen to a dozen bulbs, planted closely together, and we cannot then realise the true charms of this fairy-like little flower, allied to the Scillas but of softer and more delicate colouring than the most of these flowers.

Its bane is the slug, but if planted in quantity this arch enemy of the gardener appears to come to the conclusion that it is "too common" for him to make a dainty morsel of, and does not crop it to the ground as he will do with one or two bulbs. But even a goodly number of Puschkinias will not cost very much for a considerable number, and I have just looked up the list of a reliable firm which offers P. libanotica or scilloides at 5s. 6d. per 100 or 53s. per 1,000. What has specially induced me to pen this note was seeing recently a lovely group of irregular form of P. libanotica in a northern garden, where about a hundred or so had been planted about an inch apart. Among numerous other bulbs, the Puschkinia was charming and fully justified the choice of its owner, one of high taste in floricultural affairs. P. libanotica is said to be synonymous with P. scilloides. The variety compacta has more flowers in a truss, but they look rather too close together to suit every one. The flowers are a pleasing light blue and white. P. libanotica may be purchased in early autumn and planted about an inch apart at a depth of one or two inches, and will flower about March. *S. Arnott.*

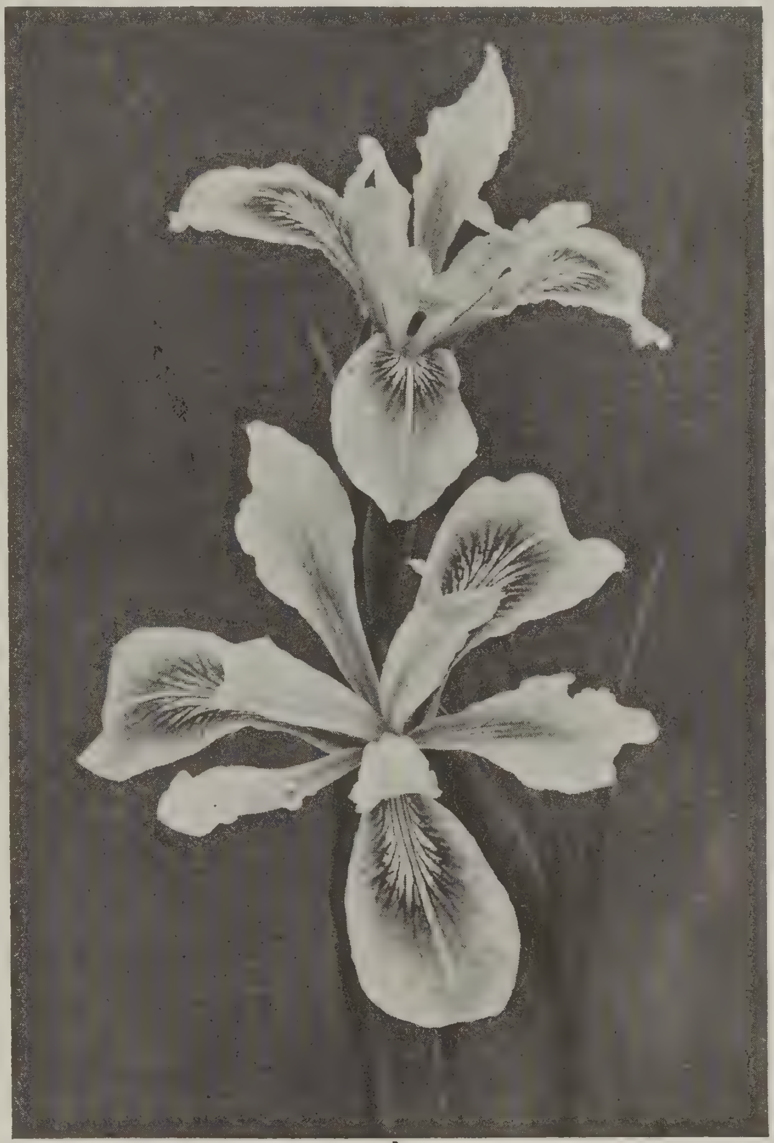

FIG. 125.—IRIS DOUGLASIANA VAR. MERTON: R.H.S. AWARD OF MERIT, MAY 8. (SEE PAGE 264.)

TULIPS.

May is the chief month of the Tulip, for although the early bedding varieties flower in April they usually last in beauty until the early days of May, when they are followed by the much more beautiful late flowering varieties of the Cottage, Darwin, Bizarre and Parrot types. The graceful foliage and long stalks, holding their large, cup-shaped flowers, often 2 feet above the ground, give them many advantages over the early-flowering section.

Used with such dwarf-growing plants as Aubrietias, Arabis, Myosotis, Pansies and Violas as a carpet, they are invaluable for the adornment of the formal garden and pergola bases.

Such popular varieties as Clara Butt and Gustave Doré, carpeted with double white Arabis; vitellina, Golden Crown and Bouton d'Or, carpeted with Aubrietia or Myosotis; La Merveille and Caledonia, carpeted with white or yellow Violas make a very effective colour scheme, and the scope for variation is sufficiently wide to meet all conditions and suit every taste.

Very striking colour effects may also be obtained in the less formal part of the garden by planting Darwin Tulips in combination with Azalea mollis. The soft tones of the Azaleas harmonise perfectly with the Tulips, and produce pictures of surpassing brilliance and beauty. *W. Auton.*

INDOOR PLANTS.

BROWALLIA SPECIOSA MAJOR.

Seed of this interesting greenhouse plant should be sown at once, and the plants therefrom will make a useful addition to the conservatory subjects during autumn, provided they are not grown too quickly in their early stages.

If the seedlings are raised in very open soil in a greenhouse, they will be ready for transferring to small 60 sized pots in about a month. As roots form quickly, the plants should not be allowed to remain too long before they are finally placed in their flowering pots, which may be either 4 inches or 6 inches in diameter. Use a good, open loam mixed with rotted manure and leaf-mould. Water the plants carefully until the pots are filled with roots, after which liberal supplies of manure water may be given. Watch carefully for aphis, and fumigate the house on the first appearance of this pest.

Grow the plants on a shelf of the greenhouse or in a frame, and they will give a succession of delightful blue flowers. *J.*

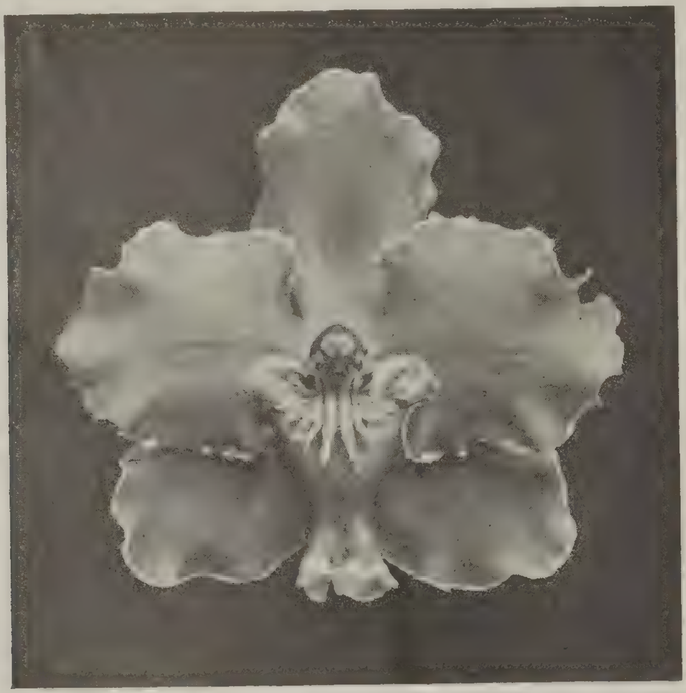

FIG 126. — ODONTIODA NAOMI : R.H.S. FIRST CLASS CERTIFICATE, MAY 8. (SEE PAGE 264.)

SOLANUM WENDLANDII.

It is to be regretted that Solanum Wendlandii is so seldom included in the general collection of greenhouse plants in private establishments—and I do not remember it being shown on any large scale since the time when Messrs. James Veitch and Sons used to exhibit it. This firm grew it well and showed it with enormous heads of blue flowers in 4½-inch pots.

Propagated from cuttings inserted in sand the plants make fine specimens quickly, if potted on in good loam, into 48-sized pots. Such plants will flower during the late summer. As an alternative they may be grown on as specimen plants by pinching the leading growths early, and repotting them into larger receptacles. In all cases firm soil is of the utmost importance.

The best use to which this plant can be put is, however, as a greenhouse climber. Planted out in rich soil, it will in a year or two make a very grand plant. Taken up a pillar and then trained along a wire or chain, it will flourish splendidly, and is a rich feast of colour when in full bloom, its pendulous clusters of flowers being the admiration of all who have grown it.

The roots should be fed liberally with weak liquid cow manure and soot water whilst the plant is actively growing. The leaves and shoots should be syringed with a weak insecticide on frequent occasions. All decaying growth and all the old shoots that can be dispensed with should be removed, training in the young growths for extension where possible.

STREPTOCARPUS.

A very general impression prevails that this lovely greenhouse plant needs a high temperature, and I believe more failures arise from this than any other cause. With such delightful strains as are now procurable, it is a pity that more cultivators do not grow a good batch of plants. Their culture is easy, and if kept clean they will more than repay a trial.

The best time to sow the seed is, speaking generally, the early part of June. Sow in pans of very light gritty soil, taking care to first mix the seed with fine sand, for it is of very small size.

Press the seed into the soil, cover the seed-pan with a sheet of glass and place it in a shaded pit, having a temperature of about 60°. Turn the glass every day—or, if necessary, twice daily.

Gradually accustom the seedlings to the light, shading them from direct sunshine, and prick them off, as soon as they can be held with a split match stalk, into a light, peaty mixture. The pace at which they grow is remarkable, and a second pricking off into boxes is soon needed—after which they may be placed in small 60-sized pots, still using a mixture that is rather on the light side, but not adding much peat. At that stage the plants may be grown in a shady frame or pit, but strict attention must be paid to syringing them to keep them free of aphis—their great enemy.

By September the plants will be ready for transferring to pots in which they will flower, those of 48-size being suitable; if room is not available for them during the winter they will not take much harm if not repotted until March. Such plants should be given manure-water on one or two occasions during September.

The soil for the final potting should consist of very fibrous loam, mixed with a generous amount of leaf-mould, a little peat and sand. Do not pot too firmly; water the roots and grow the plants in a moist, close atmosphere; after that a temperature of 50°, with shady conditions, will be suitable.

The newer strains of Streptocarpus provide flowers with lovely shades of pink, red and blue, many being quite self-coloured. The flowers are larger and the stems such longer than in the older type. *J. S. D.*

HARDY FLOWER BORDER.

THE COLOURED ASTILBES.

The coloured Astilbes are not always eas to place where their hues will be in harmon with those of other flowers. In some place their clouds of pink or red of various shade do not associate with other plants so as to giv unalloyed pleasure. A few years ago, about th time the Arendsi hybrids were first introduced I saw a nice effect produced by groups of Venu and some others in the wonderfully beautif rock garden at Carnell, Ayrshire, where Mr Findlay Hamilton created such a magnificen rock and water garden. Down near the wate these were superb. As single plants in larg borders in other places I have never cared fo them after seeing how well they were adapte for waterside treatment. At Argaty, Perth shire, a good number have been planted in th lower levels of the charming Dene, and las year these were glorious when seen from abov or when looking up the lovely glen, with i babbling stream and the tracery of branch an leaf. In addition to some of the Arendsi varieti of the Venus type, coloured ones of the asti boides class and the tall Salland and other have been employed at Argaty in groups of o variety, associated with the others, howeve and planted irregularly with a plant or tw straying from the main mass in a pleasi fashion. This is one of the most successf ways of employing these coloured Astilbes.

GEUM RIVALE LEONARD'S VARIETY.

This beautiful Geum is named after the la Mr. H. S. Leonard, of Hitherbury, Guildfor the founder of the Guildford Hardy Pla Nursery, who, in his day, was one of th pioneers of alpine plant propagation and di tribution. The plant is also known as Geu rivale Guildford Variety. Our wilding loo dull indeed beside this fine variety, whi if I recollect aright, Mr. Leonard once told m he had found in Norway. This Water Ave has old-rose-coloured blossoms, a replica of t wild Water Avens with brighter coloured flower and the same graceful habit of the wildin It makes an excellent border plant, and i creases quickly, necessitating division and r planting every two or three years. This Geu also makes a capital subject for the watersid *S. Arnott.*

GERANIUM ATLANTICUM.

Though by no means a new plant, Geraniu atlanticum is still uncommon in gardens, whi is the more remarkable since it is not on distinct, but a species of much merit. It sen up flower stems to the height of rather less tha a foot in spring, and these bear violet blossom slightly shaded with red. At this season, th deeply-cut leaves might be mistaken for tho of a Wood Anemone, since they rise direct fr rhizomatous stems, and make a dense carp about half the height of the flower spike. The die away in summer, when the plant undergo a rest, to reappear with the autumn rains.

G. atlanticum does well in any ordinary, wel drained loam, but it often takes some time become established. The probability is that th is due to transplanting when the plant is active growth, whereas the better way would to move the roots as soon as the foliage di down in summer.

ERODIUM CHAMAEDRYOIDES.

Also known as E. Reichardi, this is a ve delightful little carpeting plant for any co but free soil, with open exposure. It makes prostrate mass of dark green, scalloped lea above which the milk-white flowers rise on on inch stems in spring. Though hardy and fr growing, it is not a trespassing plant. It ma be trusted among the choicest species, and i mat of foliage makes an admirable setting f dwarf Narcissi, species of Crocus, and oth tiny bulbous plants.

There is a form of the plant known as ros which differs only in the colour and size its flowers, these being a clear rose-pink, w veinings of a deeper hue, and they are conside ably larger than those of the type. *A. T. J.*

PUBLIC PARKS AND OPEN SPACES.

The official opening of new bowling greens at Preston Park on May Day provided numerous Brighton residents with an opportunity of viewng many improvements carried out under the direction of Mr. H. B. MacLaren, superintendent of the Parks and Gardens.

Near the southern entrance to Preston Park, an old hut and its surrounding derelict shrubs have been cleared away to allow spectators a lear view of the bowling greens and the tennis courts, of which latter there are now nineteen, eight having been made recently.

In the south-eastern corner of the Park a fine new pavilion has been erected from designs by Mr. MacLaren. It contains rooms for bowlers and for tennis players and accommodation for both ladies and gentlemen. Here also are a Rose pergola and Rose-clad verandahs, the whole being surrounded by dwarf walls and low rockwork, in which the numerous bright alpine plants find a congenial home and natural setting. This new playing centre at Preston Park has cost the Brighton Town Council about £3,000, ut it is estimated that the revenue from the ew greens and tennis courts will soon cover this utlay.

The Corporation of Eastbourne has bought the Manor House, near the Royal Eastbourne Golf Links, for the extension of Gildredge Park. The roperty was offered by auction last summer, nd the Corporation now becomes the owner at cost of £19,000. The Manor House was formerly a vicarage, being erected by the Rev. Henry Lushington, who was vicar of the Parish in 1735; it became the Manor House in 1792. The gardens have an area of nearly nine acres, and include a summer house built by the rothers Adam, much of whose work is contained in the interior of the house.

The Glasgow Botanic Gardens are under the dministration of the Parks Department of the Corporation. They are situated on the western fringe of the city, and on undulating ground, with numerous shady walks and pleasing vistas. From the high ground above the Kelvin the iew is extensive, and semi-highland in character, including within the range of vision the Campsie Fells, the Kilpatrick Hills, and Ben Lomond.

There are many features of interest in the arden, including an enclosed herb garden, with medicinal and culinary herbs, parallel herbaceous orders flanking the promenade extending from the main range of glasshouses, a hardy Fernery, nd a water garden, consisting of twin ponds, the overflow from the upper feeding the lower ond, the overflow from the latter trickling cross one side of the rock garden, which is ontiguous. The shelving banks of the dry bed f a stream are gay with Cytisus kewensis, C. Ardoinii, Ranunculus amplexicaulis, Cardamine igitata, Primula pubescens, P. frondosa, Draba izoides, and Saxifraga decipiens in variety. On the slopes around the ponds, Kingcups and Primula lichiangensis, P. saxatilis and P. Juliae are flowering. A gently sloping bank is lanted with dwarf shrubby Veronicas, V. Guthriana, V. Haastii, V. Kirkii, V. Matthewsii, V. amplexicaulis, V. cupresoides, V. diosmifolia, nd other kinds, several plants of each being massed together.

The Kibble conservatory is an imposing-looking structure, circular in outline, and furnished with groves of tree-Ferns and Bamboos, and road borders of choice shrubs. Bauera ubioides, Drimys Winteri, Fremontia californica, Staphylea colchica, Philadelphus Lemoinei, Decaisnea Fargesii, Leptospermum scoparium, Choisya ternata, and various Rhododendrons, re flowering in the Kibble.

In the greenhouses are many interesting lants. A large specimen of the Vanilla covers roof space 40 feet by 6 feet. I also noticed a large flowering form of Medinilla magnifica with racemes 2 feet in length, and foliage considerbly larger than in the typical species.

Cochliostema odoratissimum is an uncommon lant with flowers of quaint structure and coloured deep blue.

Toxicophlaea spectabilis, the greenhouse Winter-Sweet, is also flowering. Orchids in flower include Cattleya Schröderae, Laelia Ithone, Vanda tricolor, Lycaste aromatica, Masdevallia coccinea, and Cymbidiums "Glasgow" and "James Whitton," two seedlings raised in the gardens.

The collection of economic plants, tropical aquatics, pond weeds, and aquaria plants are extensive. *Fred W. Jeffery.*

MORE CONFESSIONS OF A NOVICE.

Long ago—in a pre-war existence—I enjoyed the privilege of confessing my gardening sins of omission and commission in the pages of this journal, and found much solace for my frequent failures and encouragement of my occasional successes in the generous help and advice which—true to the tradition of their order—gardeners who scanned the intermittent confessions extended to me. Then came the harsh years, when ploughshares were turned into swords and lawns into market gardens, and wireworms showed alien sympathies by devouring the crops sown in patriotically turned-up pasture. My novitiate as a gardener was ended and such hope as I cherished was that when the turmoil was over and it came my way to resume the peaceful art of gardening, I should then be able to speak as one in authority, and not as a novice, writing articles of pontifical or professorial certainty, no longer confessing my ignorance, but alleviating that of others.

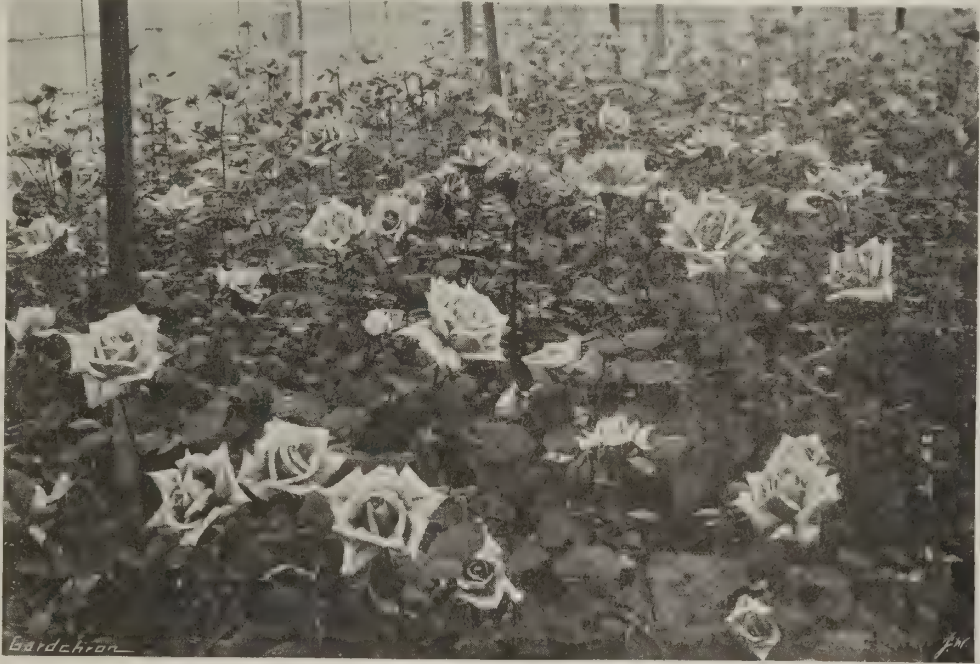

FIG 127.—ROSE DAVID LLOYD GEORGE, AS GROWN UNDER GLASS FOR MARKET: R.H.S. AWARD OF MERIT, MAY 8. (SEE PAGE 264.)

Alas, when recently the opportunity came to tend and watch plants again, I found that my ignorance was still as spacious as ever it was, and that if I were to resume my intercourse with fellow-gardeners it could only be on the old terms and by way of more confessions. In spite of doubts whether the garrulousness of age can meet with the same sympathy as that with which the cheery impertinences of my youth were tolerated, I make the venture, encouraged thereto by the reflection that there must be many another like myself who intermitted the practice of gardening and who has now resumed it. My own gardener is one of these.

He spent his war years in Mesopotamia and India and fever hospitals. Five years he was away, and when he returned, the British flag which he had run up on the tallest tree of the garden in which we worked, though still flying, was so torn and tattered and riven to shreds that he mistook it for an ineffectual scarecrow. After the peace we hauled it down and, compelled by force of circumstance to remove from the delectable sandy soils of Surrey to a heavier land and harsher climate, we set forth in August, 1920, to make a new garden on the side of a hill, just where green sand runs out and Kimeredge clay comes in; sandy above, progressively heavier below, and all rough pasture. The furrow marks and "lands" showed that it had once been cultivated, but as the ancient man who hedged and ditched in those parts averred—not within the memory of the oldest old-age pensioner.

So, with a large spade and the stoutest heart I have ever known in a man, my gardener inquired his way one day in August, over two years ago, to where the garden was to be; when I joined him two days later, he looked up for a moment from his labours, remarking: "I have had five years in digging trenches, and it looks as though I shall have five years more." Now, two years since, those who come to see us are pleased to say that some day we shall have a beautiful garden.

Though I am old, I like to be beguiled by the courteous mendacity of friends, and so I am gratified by such remarks; but they, after having been caused to make a meticulous inspection of the length and breadth of the garden, not infrequently regret their good breeding and wish they had been more truthful. Returning to the upper terrace and sinking into a garden chair, they generally confine any further remarks they have to make to the subject of the view—which from the terrace is indeed beautiful—in front, meadows and beyond them scattered rows of Elms, a farm house, and at one point the glint of the river; away in the distance a line of hills, dim in the blue haze; to the left and right, flanking the garden, two hilly slopes running down crosswise to meet that of the garden. Very beautiful they are, with great groups of Gorse, wild Roses, and Thorns backed by woodlands and strangled by all-pervasive Bramble. Between these lateral hillocks and the hillside of the garden, a streamlet runs—it is really a ditch, but we like to speak of it as a stream.

Such is the place. Only a novice could believe that out of it a garden could quickly be made, and even he might have been less confident had he but known.—*A. N.*

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LILIES.

FORTY years charged with interest alike to botanists and horticulturists have passed since Franchet published his observations* on such of the Lilies of China and Tibet as came under his notice in the herbarium of the Jardin des Plantes. New species have been found in Western China by Dr. Henry, Mr. Wilson, Mr. Forrest, and others; old species have been introduced or reintroduced to cultivation, and before his death Mgr. Léveillé alone had added 10 names to the list of Western Chinese species.

In the *Monograph of the Genus Lilium* (1881)—the only scientific work on the genus of modern times—L. Davidi figured as the sole representative of Western China, though Mr. Henry Elwes, the author of the *Monograph,* hazarded the opinion that Western China would prove to be the home of such Lilies as still remained to be discovered in the temperate regions of the globe. It was a shrewd forecast, for, as we now know, there are more Lilies in Western China than elsewhere.

But notwithstanding the accumulation of new material during the 30 years which have elapsed since Franchet's paper was published, no serious attempt at a much-needed revision of Chinese Lilies has been made till 1919, when Mr. E. H. Wilson commenced the investigation and enumeration of the Asiatic species for the writer's Dictionary of the genus. Descriptions of new species, or species regarded by their authors as new, have been published from time to time, as have observations and fragmentary notes on the Chinese species in general; but, as was perhaps inevitable, the nomenclature of this remarkable group has gradually become more and more involved. In these circumstances, the publication of the first scientific digest of some sections of the Western Chinese Lilies to be published since the date of Franchet's paper will be doubly welcome.

The Lilies now passed in critical review† by Prof. W. Wright Smith, who recently succeeded the late Sir Isaac Bayley Balfour as Regius Keeper of the Edinburgh Botanic Garden, are in four groups:—(1) L. taliense, Franch, and its allies, L. ochraceum, and L. Stewartianum, a new Forrestian species from Yunnan; (2) L. Davidi, Thayerae, sutchuenense and Fargesii; (3) L. Duchartrei, papilliferum, lankongense, Forrestii and Farreri; (4) L. Bakerianum and Lowii, both Burmese plants, yunnanense and Delavayi.

Prof. Wright Smith also surveys the Lilies of Mgr. Léveillé, whose herbarium material came into the possession of the Edinburgh Botanic Garden some years ago, incidentally rejecting the claims to specific rank of all but two—L. Tenii (Fig. 128) and sempervivoideum—and leaving L. Pyi doubtful. Those reduced to older species are:—L. Bonatii, Cavaleriei cupreum, Feddei, linceorum, Mairei, and majoense, a formidable list.

Of the first group, L. taliense is not in cultivation, nor, so far as the writer is aware, is L. Stewartianum (Fig. 129); but, as Western China seems to hold few secrets now for the explorer, we may hope eventually to handle them all. Thanks to Mr. Forrest, L. ochraceum has been in cultivation for some years, and, though interesting to the student of the genus as showing that, even in a highly developed race such as Lilium, there exists a primitive, undeveloped plant, it makes no appeal to the cultivator.

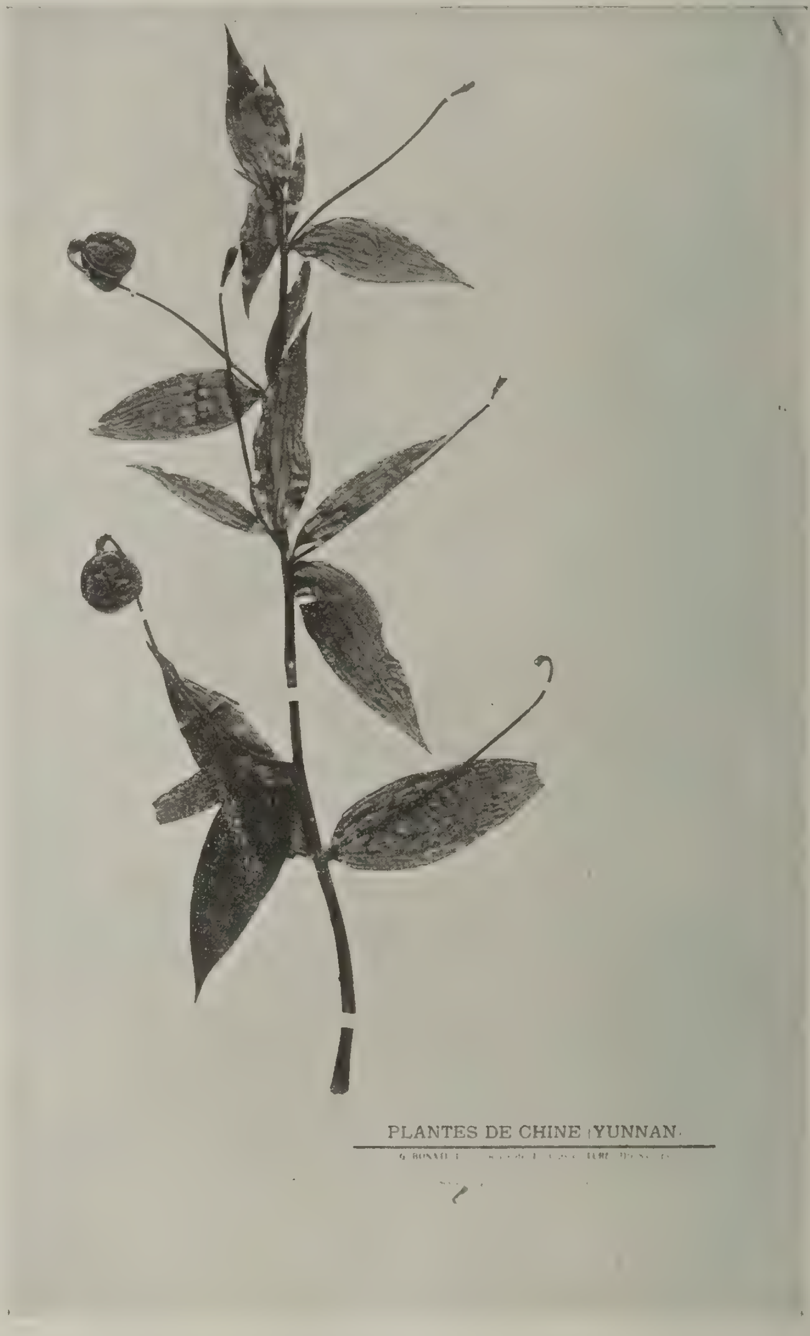

FIG 128.—LILIUM TENII FROM THE SPECIMEN IN THE HERBARIUM OF MGR. LÉVEILLÉ.

The author's interesting consideration of th relationship between L. ochraceum and th older L. nepalense of the Central Himalay leads him to the conclusion that they may b kept distinct. But the dividing line is assuredl thin, and it is possible that further consideration of these Lilies in the field may lea to the conclusion that L. nepalense, ochraceum and possibly primulinum as well, are geographical forms of one species.

Of more general interest to the cultivato are the author's conclusions as to L. Davidi sutchuenense and Thayerae, a trio he conside should be reduced to one species. It will b remembered that the beautiful figure of L Davidi in the *Monograph* was reconstruct by the artist from David's dried specime and the nature of the reconstruction may gauged by anyone who compares the photogra of the type specimen, recently published in t *Gard. Chron.,** with that of the finis drawing. As Prof. Wright Smith observes, t material was far from good, but the arti did his best.

Deterred, perhaps, by the sacrilegious noti

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* "Les Lis de la Chine et du Thibet," dans l'herbier du Museum de Paris. Delavay, Farges; par Adrien Franchet. *Jour. de Bot.*, VI., 1892, pp. 305-21.

† "Notes on Chinese Lilies," by Prof. W. Wright Smith. *Trans. and Proc. of Bot. Soc. of Edinburgh.* XXXVIII., Part III.

* February 10, Figs. 37, 38, pp. 78, 79.

at such a beautiful plant could be the fig-
nt of an artist's brush, experts have hesi-
ed to throw doubt on the existence of L.
vidi, hoping against hope that this Lily
ght eventually be found. Most appropriately,
wever, it has remained for Mr. Wilson,
o searched David's locality in vain for this
low-flowered species, and remained justifiably
ıbtful as to its existence, to make the in-
esting and important discovery that L. Davidi
the *Monograph* is his L. Thayerae in dis-
ise. Prof. Smith has no more qualms in accept-
Mr. Wilson's conclusions than others who
ve examined the problem in the light of his
coveries and have seen the type specimen.
only remains now to give decent burial to
at some regard as the most delicate drawing
the *Monograph*, and bear in mind that
Thayerae of Wilson takes its place and
name. Mr. Wilson has rendered signal
vice to the cause of botany by this laying
a ghost which has perplexed students of
genus for so many years.

Prof. Smith holds the view that L. sutchuen-
se, Franch, must be merged into L. Davidi
e latter, "not uncommon in the wild state,
a widely spread, cultivated Lily, showing
ny divergences in habit and in villosity.
pical Davidi shows pronounced villosity and
tle or no rhizomatous growth. But it varies
forms with glabrous perianth and creeping
zome. The form with glabrous perianth is
Lily called sutchuenense by Franchet
is is not more than at most a variety of
vidi. The variety is a variable Lily, in-
ding Thayerae, Wils., and sutchuenense.
nch., these forms showing a transition
m marked villosity to glabrousness in the
ianth."

Villosity and the creeping stem peculiarity
ve come to be regarded as such good charac-
s in Lilium that the cultivator has a natural
uctance to throw them over, especially as.
they are jettisoned, as other so-called
racters have been jettisoned from time to
ne, there is not very much left in the way
definite features to which he, as distinct
m the scientific botanist, can cling. L.
vidi, as we must now call L. Thayerae, is
excellent example of the difficulties con-
nting the amateur in the specific deter-
nation of a plant. There is no doubt that
the garden, typical Davidi is a distinct
y, with pronounced and definite characters
ich have been faithfully reproduced during
eral generations of seminal propagation. It
an elegant, upright-growing Lily, with
vers showing refinement and an unmistak-
e colour, the rouge minium of the
ertoire de Couleurs. There is much per-
ent white tomentum about the bud and the
m, which exhibits no wandering tendency.
grows erect from the bulb. In adult
cimens (four years old) the latter will often
as much as 2¼ inches in diameter, and ivory-
ite, gradually becoming tinged with purple
the points on exposure to the air. In
mal seasons the plant bears an abundance
fertile seed.

n Prof. Smith's view, this Lily is no longer
be separated from the very different-looking
nt known hitherto as L. sutchuenense of the
anical Magazine (t. 7715). The habit of
t comparatively puny plant, which looks like
"poor relation" of the other, resembles that
L. Leichtlinii. The stem is slender, and
eps about underground before pushing
ough; the foliage, instead of being crowded
in L. Thayerae, is sparse. The plant
ally bears from 1 to 3 flowers only, occa-
ally 4, and the bulb is but little larger
n a Walnut; moreover, it remains small,
l, unlike that of typical Davidi, does not
ld to cultivation. The writer has not known
s Lily to produce seed.

here is just the possibility that some
ther probing of the relationship between
se two Lilies—L. Thayerae and Franchet's
chuenense—may result in some modification
the conclusions arrived at by Prof. Smith
n his examination of the ample material at
command; it may be that Franchet's inclu-
of Prince Henri d'Orleans' Tatsienlu
cimen and the Tchen-keou-tin specimen of
Farges as con-specific may prove untenable. But the Professor's citation of numerous field specimens showing leanings, in one example to L. Thayerae, in another to L. sutchuenense, and in a third to both, render it improbable that his deductions will be seriously disputed.

Meanwhile the cultivator will welcome some simple method of identification of the two Lilies, synonymous and yet to the eye so different. If we apply the varietal names, L. Thayerae and sutchuenense to the strong and weak growing forms of L. Davidi, it will at least provide the cultivator with a simple handle for each, while retaining something of sentimental and historical interest as well.

In the absence of material Prof. Smith does not deal exhaustively with that very distinct-looking plant, L. Willmottiae, of Wilson, except through hazarding the suggestion—untenable to the cultivator—that it may be synonymous with the Lily (L. Thayerae) figured in the *Gard. Chron.*, August 16, 1915, Fig. 47. Nor, for the same reason, is the position of L. Biondii, chinense, or Rosthornii determined; but Prof. Smith views L. Fargesii as a good species. It is one of several Chinese Martagon species not yet in cultivation.

In his consideration of L. Duchartrei and its allies, L. papilliferum, lankongense, Forrestii and Farreri, Prof. Smith expresses the view that while L. papilliferum stands as a good species, the last three should be reduced to L. Duchartrei, a conclusion in which, as regards L. Farreri, the cultivator will agree.

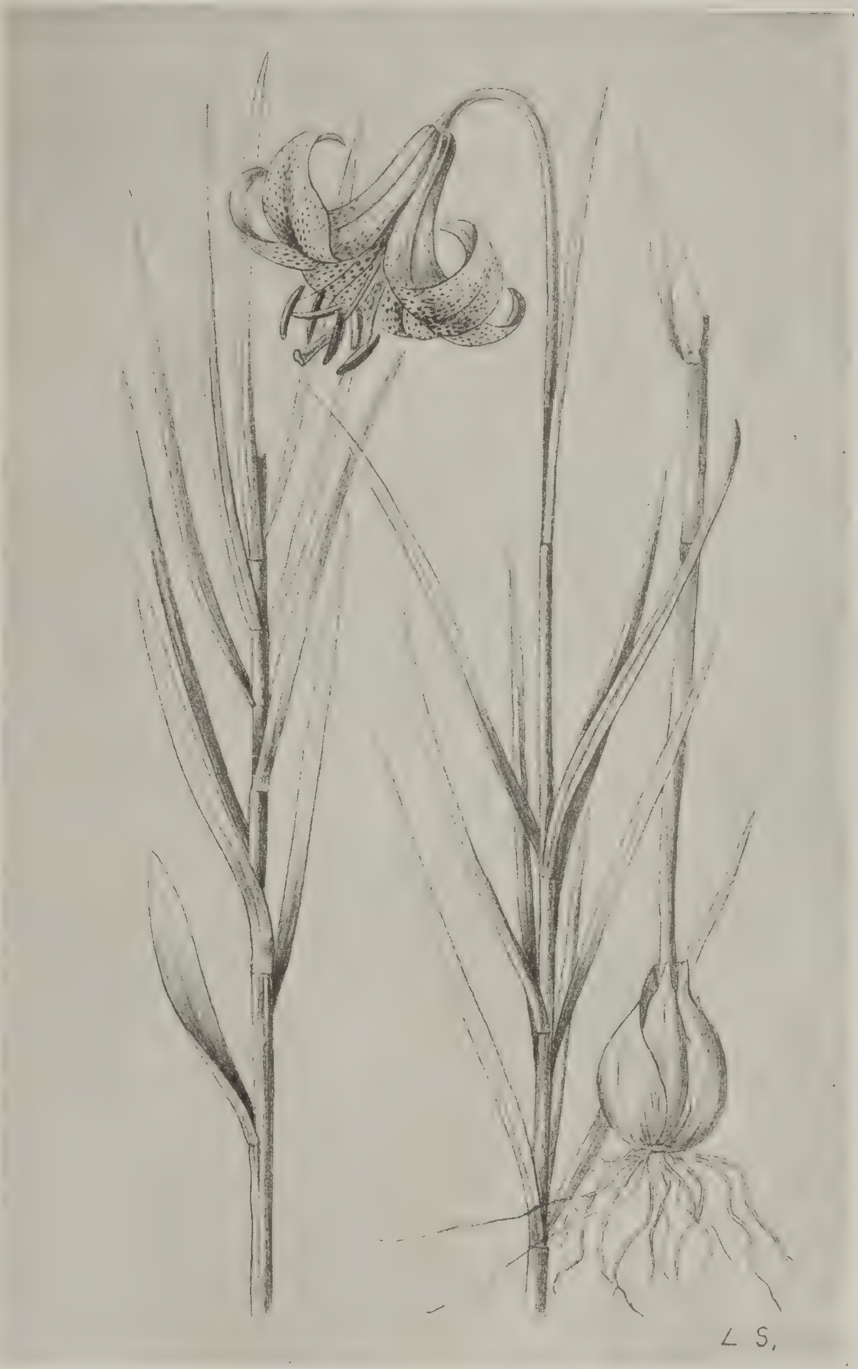

FIG. 129.—LILIUM STEWARTIANUM; REPRODUCED FROM A DRAWING OF THE DRIED SPECIMEN IN THE HERBARIUM OF THE ROYAL BOTANIC GARDENS, EDINBURGH.

The author's final group includes L. Bakerianum, Lowii, Delavayi, yunnanense and sempervivoideum. Except the last two, these are familiar to cultivators, who know that neither L. Bakerianum nor Lowii—a form of it—is in any sense a garden Lily.

Prof. Wright Smith has made a contribution to the literature of Chinese Lilium as important as it is worthy of the high traditions of the office he holds. It will be welcomed by those interested in the genus, as throwing light on points which have for long needed illumination. The elucidation of the Lilium material in the herbarium of Mgr. Léveillé alone entitles the paper to a place in the annals of Lilium, and we cannot be too grateful for the wise foresight which led the late Sir Isaac Balfour to arrange for the acquisition of the Léveillé herbarium for the nation.

The illustration of L. Stewartianum * (Fig. 129, p. 275) is reproduced from a drawing by L. Snelling from a dried specimen in the herbarium at Edinburgh. That of L. Tenii (Fig. 128) is from a photograph of a dried specimen in the herbarium of Léveillé. It illustrates the peculiar resupinate character of the fruit. Both illustrations are published by permission of Prof. W. Wright Smith, M.A., F.L.S. *A. Grove.*

DISEASE RESISTANCE AND A COPPER HYPOTHESIS.

Botanists unfortunately are rather apt to use the words immune and immunity where merely non-specific resistance to disease is present; zoopathologists are more careful in their language, and limit immunity to specific protection. A true acquired or passive (specific) immunity amongst plants does not appear to have been determined so far, though resistance and the inheritance by resistant stocks have occupied much attention.

Lately, attention has been attracted to the records of the finding of minute though measurable quantities of copper in the most varied assortment of plants and plant products. Wheat, Potatos, Tomatos, fruit of various sorts, Peas and Beans, Cocoa Beans, etc., etc., all show the presence of this metal in their tissues, roughly more or less than about one part per million. In the case of the Pea and Bean (Maquenne), it has been shown that in ripening the copper in the pod diminishes, whilst that in the seeds increases, contrary to the movement of calcium in the same plants.

In many cases the finding of copper is independent of applications containing the metal to the plants and their surrounding soil, but it is curious to note that several observations on Bordeaux-sprayed Grapes, Potatos and Tomatos have failed to show greater proportions of copper than have unsprayed samples. Thence it would seem clear that such of the metal as appears in the plants has gained access through the roots; and here it may well be that some general, species or varieties have inherently greater powers of absorption for copper than others. It is well known that other mineral constituents are absorbed in different degrees by different kinds of plants—for example, the great faculty of the Tobacco plant in regard to potash. But it is especially in regard to varieties or strains —that is, resistant ones—that the matter may have special importance, and the object of this note is to suggest that inquiry should be instituted into the mineral constituents, including copper, of a number of strains of resistant and non-resistant (so-called immune and non-immune) character. When analyses have been made, it should be possible to judge whether, or how far, resistance may be due to an enhanced power of absorbing copper salts from the earth, where apparently it is very widely distributed in minute quantities.

Further, it should be kept in mind that other constituents should not be neglected. Thus we know, both in laboratory and in technology, that soda and potash are by no means interreplaceable in copper reactions, hence correlations of such elements to copper findings must be accorded their significance. In spraying experiments against Potato Phytophthora, it has been stated that the Bordeaux wash (lime and copper) is more efficient than "Burgundy" wash (soda and copper); whether a potash-copper wash has been used, I do not know; though I intended to try it many years ago, the project was not carried out. Anyway, the trial of the three mixtures on plots could well form the basis of an interesting experiment in conjunction with analyses.

Again, the statement noted above that often the use of a copper spray wash makes but little difference in the copper content of parts of a plant, may rest on some adjuvant or inhibitive factor; as already suggested, potash may play a part; further, we have a potent agent in ammonia and its salts, whilst lastly, the formation of the highly insoluble sulphide may take a restricting share. There can be little question that varying soil conditions may make very great differences in the amount of copper that might be in absorbable condition, quite apart from any specific coefficient of absorption on the part of the plant.

Another point which does not appear to have been as yet established is in what form the copper exists in the plant, for recorded analyses seem based upon ash determinations; is it in a free ionised state, or it is locked up in some organic complex, as in the haemocyanin of the lobster's blood; or does it exist in both states? "Rare" elements are extraordinarily widely distributed, as for instance the gold in the ocean and vanadium in some jellyfish, so that a hunt for copper alone does not necessarily bring the weary toiler to the end of the road.

There has been some correspondence in these pages lately concerning the value of copper sulphate washes on fruit trees. Just ten years ago I visited a number of fruit growers in northern France; they were then much addicted to the use of iron sulphate instead of copper, and stated that for scab and cleansing it seemed to act as efficiently as copper, and that it was very much cheaper; again, where trained trees and galvanised wires or supports were in use the iron salt was less destructive than the copper salt. It was used in a strength of 5 to 7 per cent. It may be added that the late Mr. Spencer Pickering used the salt as a means of making colloid emulsions for spraying. *H. E. Durham.*

VEGETABLE GARDEN.

BEET.

In an article on Beets in *Gard. Chron.*, Sept. 23, 1922, p. 182, Mr. F. J. Chittenden stated: "The large variety of Beets growing in the gardens of the Royal Horticultural Society, at Wisley, remind us how small is the use to which this vegetable is put in England compared with its multitudinous uses in America and Europe."

At the completion of the trials referred to Mr. Chittenden, members of the sub-commit appointed to adjudicate upon the Beets tes proposed that the R.H.S. Fruit and Vegeta Committee should suggest to the Council desirability of making, in the near future, trial of Beets which should be submitted to cooking test to decide which were the m suitable varieties to be used as a table vegetab The committee unanimously adopted the prop tion, and the Council agreed to have it carr out in 1924. As stated by Mr. Chittenden, round varieties are the most suitable for use a vegetable, and it is desirable that the should include the zoned as well as the de coloured varieties. The prejudice in favour the latter is so pronounced that the tasting bo might be asked to submit to being blindfold while making the test; the results would most interesting and possibly surprising. yellow-fleshed, Turnip-rooted variety and large, pale-fleshed Bassano should not be omit from the trials.

As regards the methods of preparing Beets the table, Mr. Chittenden suggests that " would be wise to go to French and Americ sources with their long experience for recipes start with," and having had a fairly extens acquaintance with the use of this vegetable both countries, I availed myself of the prese of Mr. W. R. Atlee Burpee, jun., of Ph delphia, in London, to obtain from him necessary information.

In reply to my request Mr. Burpee wri "Probably the best but the most extravag way of eating Beets is to pull them when t are no bigger than a Radish, wash th thoroughly, cut off the top and bottom, them for the usual length of time, and s them whole, placing on top of the Beets a p of butter and a little salt and pepper. This what is known with us as buttered Beets, is the common way of serving them, altho it is very seldom they are used so small; h ever, to my mind the flavour is far super at this age to what it is when the Beets fully developed. When older Beets are u they are sliced into convenient pieces (a cooking). I shall send you a copy of a li cook book which we issue, in which you be able to find more definite information."

The "cook book," which I have since recei is one specially prepared by Messrs. Bur from recipes furnished by Mrs. Anna B. Sc a famous cooking expert on the staff of Philadelphia *North American*. Under the he ing "The Best Way to Cook Beets," Mrs. Sc writes: "The Beet is a root having a high value, in this particular ranking almost w string beans, and, while its leaves or tops commonly thrown away, when cooked spinach these make delicious 'greens.' If tops are young, boil with a piece of bacon same as kale or spinach. 'Pickled Beet wash six medium-sized beets and boil u tender; cool in cold water. Remove skins cut into half-inch cubes; cover with half vinegar, one teaspoon salt, dash of pepper, a one tablespoon sugar. 'Beets and Horsera Relish'—One quart boiled beets, one cup gr horseradish, half cup finely chopped onion, cup vinegar, half cup brown sugar, two teasp salt, and one-eighth teaspoon pepper. W the Beets and boil until tender. Skin in water and chop very fine: then mix with other ingredients and put in a glass jar. T is very nice with cold meat, fish or oys and will keep a long time."

As the present month is a good time to c mence the sowings of Beets, I suggest that th who are interested in this matter should the recipes set out above to the test, tak care not to sow the seed too thicklv. As as the seedlings are strong enough to handle them to four or five inches apart; later, w the roots are about the size of a Walnut, ev alternate plant may be carefully drawn out used for buttered Beets; the remainder of roots will then develop sufficiently to be used pickled Beets. Make successional sowings u the middle of July, using a good globe vari and do not let the roots get over-develop Lastly, do not forget to utilise the lea
S. B. Dicks.

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* *Lilium Stewartianum Balf. f. et W. W. Sm. Sp. nov. Species sectionis Martagon et affinis L. ochraceo, Franch. et L. taliensi, Franch.; ab hoc habitu graciliore, caulibus glabris laevibusque, floribus semper solitariis flavidis differt; ab illo habitu graciliore, foliis gramineis, floribus solitariis inter alia recedit.*

Planta 45-50 cm. alta ex collectore. Bulbus circ. 2-3 cm. longus, ovatus, squamis ovato-lanceolatis tenuibus in sicco flavidis, radicibus basi sat bene evolutis. Caulis erectus glaber epapillosus; pars hypogaea 5-8 cm. longa haud repens radicibus destituta; pars epigaea basi nuda mox foliis bene vestita. Folia plus minusve 20, erecta et vix patentia, 5-8 cm. longa, circ. 2 mm. lata, acuta, ad insertionem vix angustata, omnia sparsa, plana, tantum sub lente valida margine scabridiuscula, glabra; infima nonnunquam breviora et ad 5 mm. lata; supremum saepe ad basim floris solitarii attingens. Pedunculus 6-7 cm. longus flore nutante fragrante. Perianthii pars tertia tubulosa; segmenta subrevoluta, fere 4 cm. longa, medio circ. 9 mm. lata, oblonga, obtusiuscula, saturate olivaceoflava, maculis atrokermesinis densissime ornata; sulcus nectariferus nudus glaber. Staminum filamenta 2.5 cm. longa, glabra; antherae 8-9 mm. longae, in sicco brunneae. Stylus in flore bene evoluto dissecto tantum 1 cm. longus ovario 1.5 cm. longo brevior, nonnumquam ovarium subaequans, certe duplo vel triplo haud superans ut apud L. taliense vel. L. ochraceum. Fructus deest.

"West China.—Mountains in the N.E. of the Yangtze Bend, Yunnan, on open stony pasture. Lat. 27° 45′ N. Alt. 11,000 feet. Plant of 18-20 inches. Flowers, ground colour, deep olive-yellow, but almost black, with deep crimson-maroon markings, fragrant. July, 1913." G. Forrest. No. 10,647.

"Mountains of the Chungtien plateau. Lat. 27° 30′ N. Alt. 12,000. July, 1914. Duplicate of 1913." G. Forrest, N. 12,734.

The following, with less darkly spotted perianth, is the same species.

"West China.—N.W. flank of the Lichiang Range, Yunnan, on ledges of limestone cliffs and stony pasture. Lat. 27° 35′ N. Alt. 12,000 feet. Plant of 2 feet. Flowers greenish-yellow, profusely spotted maroon, fragrant. July 1913." G. Forrest. No. 10,659.

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for opinions expressed by correspondents.]

Campanula Rapunculus.—At one time I grew s Bell-flower for the roots, which were eaten dinner at intervals from October till ril. The seeds should be sown now, as the nts flower the same year when sown earlier. the seeds are minute. the lines should be rked by pressing a strong piece of string o the surface soil and the seed sprinkled ite thinly therein, finishing by patting the und over with a spade. The plants need not thinned to more than two inches apart. *P. Brotherston.*

Peas.—The criticism of my article on Peas by *D.* in *Gard. Chron*, May 5, page 176, ap- ars to be economic. He does not question the tural advice tendered. I will at once con- s that I penned the notes without any ght of a balance-sheet. My object was riefly describe the culture of Peas as I have it successfully practised in private gardens allotments since my childhood. Within the three months I have assisted in the aration of ground for Peas at several centres recisely the lines indicated in my notes. It y opinion that the question of profit and is not of serious moment in a private gar- The production of good fruit, flowers and tables is the aim. If every operation had be justified as a commercial proposition, y would stand condemned. It is impossible nswer the question "Is this sound economic hing, or this lavish expenditure of manures Peas justifiable?" Obviously everything ld depend upon the season, and the type narket available. It is true that a large tity of manure would be required for an of Peas grown in the manner I suggested. also true that the yield would be large, and produce of excellent quality. Given the t market, such produce should make a good cial return. I respectfully suggest to *G. D.* it might be profitable. The most success- market gardens I know are those which ve ample dressings of farmyard manure. The least successful are the manure-starved holdings. I regret that *G. D.* should take exception to the manner in which I recommend the use of superphosphate of lime. This chemical fertiliser is now so very well known to professional gardeners that I thought it unnecessary to labour the matter. But I am happy to do so if it will serve an educational purpose. I recommend the use of superphosphate of lime for Peas, because it is a medium through which phosphates can be supplied to the crop. Phosphates render invaluable assistance to a fruit-bearing crop, and we cultivate Peas for the sake of their fruits, *i.e.*, the pods. In my judgment the time to commence the application of a phosphatic manure is when the fruit is set, a process which coincides with the fading of the flower. The period which should intervene between the applications cannot be open to misinterpretation. I meant the ordinary week of seven days. I regard the pods as being nearly full when the Peas occupy approximately three-quarters of the space within them. The rate of application advised is the usual one per lineal yard of drill. *Geo. H. Copley, N.D.H.*

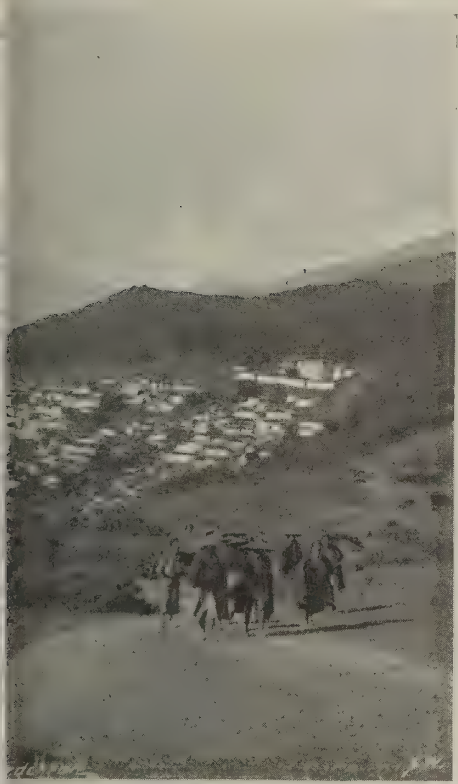

FIG 130.—MULI MONASTERY, ON A LIMESTONE PLATEAU EAST OF THE YANGTZE. (SEE PAGE 278.)

—— Experience over several years has convinced me that the placing of manure in the trenches of both Peas and Beans, as recommended by Mr. Copley in his article on p. 176, is thoroughly justified by the results. I am aware that text-books teach us that nitrogenous fertilisers are unnecessary for Leguminous crops, and this may be true, but apart from the manurial properties of the dung, the latter serves what is probably a greater use, *i.e.*, the providing of a moist medium for the roots in dry weather. Peas and Beans, and especially the former, are essentially summer crops, and the plants have to endure hot sunshine and very frequently long periods of rainless weather. It is for this reason that the moisture-retaining manure is so valuable to these crops, and it is well known that Beans fail to set their pods if the roots cannot obtain sufficient moisture. Mr. Auton (p. 247) pointed to the value of carbonic acid in the soil, derived from decaying vegetable matter, in promoting the solubility of certain salts necessary as plant food, whilst humus must be present as a medium for the well-being of beneficial soil bacteria, and in these and other directions animal manure has a direct bearing on fertility. I have seen crops of Runner Beans grown on adjoining allotments in which conditions of soil, situation, etc., were equal, the one instance planted in a trench with manure at the bottom, as in the case of Celery, and in the other without this provision, and the difference in the crops bore no comparison, whilst the period of yield was considerably increased in the case of the manured rows, owing to the earlier podding and later cropping. *T.*

Rubber.—It happened that I spent nearly a year in the Lower Amazon region just when the call of the motor-car, etc., started the boom in rubber (1899-1900), a few years later a couple of years in Malaya, just when the boom in rubber estates was beginning. Such investments as I made were not devoted to rubber; as a mere gamble, I might have "made a bit," but the comparison between the ways in the two regions led me to think that disaster might follow. Perhaps the present shorting of supplies may be the best thing that could have happened to the planter, by giving his trees a chance. Quantity may have increased, but the quality of modern rubber is mainly execrable. The reason is perhaps simple; I use now a rubber release for a camera shutter 24 years old; a piece of the artist's bottle rubber which lay on my father's desk many years is still elastic, though it must be 40, if not 50, years old. On the Amazon they would not tap a tree under some 20 or 25 years of age—because they said the rubber obtained was inferior; in Malaya poor little saplings that one could nearly span with one hand were submitted to the knife. On the Amazon they would not tap a tree below some 3 or 4 feet from the ground, nor above some 16 or 20 feet from the ground, if memory serves me well—because they said the rubber was not so good above and below or from branches. Tapping was done by cuts, of perhaps a couple of inches, thrice repeated round the tree, always going higher on subsequent days; the plantation plan is to make a long gash down the stripling tree and run sloping cuts herring-bonewise far round the trunk—in itself enough tax on a young growing tree, but made worse by freshening the cuts day by day—and the latex was to be got by the "bucketful" from each tree. Another difference was that in the lower Amazon the trees were on flooded ground for some period of the seasons; in Malaya they were said to grow better on high land. *H. E. D.*

SOCIETIES.

HORTICULTURAL CLUB.

The annual meeting of the Horticultural Club was held at the Connaught Rooms, Great Queen Street, W.C.2, on Tuesday, the 8th inst. The President, Lord Lambourne, was unable to be present and the chair was occupied by Mr. Gerald Loder. A letter was read from the Chairman, Mr. J. F. McLeod, expressing his inability to be present owing to indisposition. After the minutes of the previous annual meeting had been read and confirmed, the Hon. Secretary read the report of the committee for 1922, as follows:—

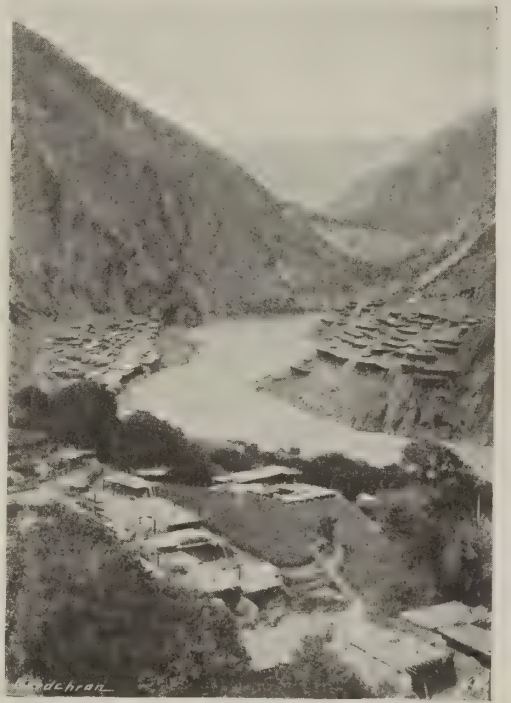

FIG. 131.—THE SALT WELLS AT TSA-KA-LO, ON THE MEKONG RIVER. (SEE PAGE 278)

REPORT OF THE MANAGEMENT COMMITTEE FOR 1922-3.

The Committee has pleasure in reporting that it has been enabled to meet the liabilities of the past year without having to call upon the members for subscriptions, and that there remains a small balance to carry over for 1923. They regret, however, that it has not yet been possible to secure permanent headquarters in the Westminster district near to the Royal Horticultural Society's hall, but the arrangement with the Hotel Belgravia whereby the members are enabled to make use of the hotel, with a room specially reserved for the Club on the occasion of important horticultural functions in the Metropolis, still obtains, also the facilities for obtaining hotel accommodation at a reduced charge at the same hotel. The Committee recognises the great need of permanent headquarters with, if posible, sleeping accommodation for the country members, and the members are earnestly invited to place suggestions before the Committee of any scheme or place whereby such can be obtained in the district of the Horticultural Society's Hall. The membership has only fallen very slightly during the past year, mainly on account of deaths, and the Committee regards with considerable satisfaction the continued loyalty of the members to this old-established Horticultural Institution.

The most successful of the Club's functions in 1922 was the annual outing on Friday, July 14, when a visit was paid to the R.H.S. Gardens at Wisley and Pyrford Court, Woking. Lectures and dinners were held on May 24, December 12, 1922, and February 27, 1923. The first was by Mr. E. A. Bunyard, on "Impressions of Algeria, Mainly Horticultural"; the second by Mr. R. A. Malby on "Beautiful Garden Features," and the third by Mr. W. B. Cranfield on "Hardy British Ferns." The thanks of the club are due to these gentlemen for the interesting evenings they provided, and the Committee appeals to the members to support their efforts in the matter of the club dinners.

Mr. Loder proposed the adoption of the report. He stated that, in common with similar institutions, the Club had suffered from the war, but the corner was now turned, and there were signs that the Club was beginning to assert itself again. It was an old institution, and just approaching its jubilee. The Club was formed for three purposes, amongst which was the entertaining of distinguished horticultural foreign visitors, and the Committee proposed to entertain members of the Federation Horticole Internationale Professionelle on the occasion of the Empire exhibition at Wembley, in 1924. The Club had not called upon the members for their subscriptions since the war, but from now forward they would have to ask the members to pay a small subscription.

Mr. William Cuthbertson, in seconding the adoption of the Committee's report, stated that he was one of the oldest members of the Committee, and his connection with the Club went back to the time when the Rev. Dombrain was Hon. Secretary. He referred with regret to the absence of Mr. McLeod, but he was glad to see Mr. Loder with them. The special need of the Club was a home, for when they left the R.H.S. building they felt they wanted a place where they could rest. Mr. Wallace also pointed to the great need of a Club room, and stated that the Horticultural Club should now go in for an ambitious scheme.

The balance-sheet was submitted by the Hon. Treasurer, Mr. P. R. Barr, who stated that there was a small credit balance of some £8, but this would not be sufficient to carry on the Club's activities without asking for a small subscription from the members.

Lord Lambourne was re-elected President; the Vice-Presidents, Sir J. T. D. Llewelyn, Sir Harry J. Veitch, and Mr. Chas. E. Shea, were also re-elected. Mr. P. R. Barr was re-appointed Hon. Treasurer, and Mr. G. F. Tinley Hon. Secretary. The trustees and auditors were also re-appointed. The committee was re-elected, and Messrs. R. W. Wallace, Gerald Loder and J. S. Brunton were appointed to fill vacancies.

Subsequent to the meeting the members sat down to dinner, and the dinner was followed by an interesting lecture, illustrated by lantern slides, by Mr. F. Kingdon Ward, on his plant collecting expeditions in Asia. Many of the views of the country he had traversed were exceedingly fine, and the pictures received frequent applause. He conducted his audience through the route he had taken on the last trip, and proceeded to describe the country, peoples, and flora of the various districts. He stated that the Marches of the Mantzu (a warlike race of Tibetan highlanders) comprise most of western Szechuan, with the adjoining parts of north-west Yunnan, east of the Yangtze.

This mountainous country, though apparently a disordered skein of high ranges, is in reality a lofty limestone plateau. It is deeply trenched by numerous rivers, flowing from north to south, cutting the plateau into blocks, faced with high escarpments, or cliffs. The climate is comparatively dry, with periods of drought, hot and cold, nearly all the rain falling in the four summer months. In abnormal years, however (and they are frequent), snowstorms occurring early and late cut the vegetation badly.

On account of the comparatively small precipitation, and the lack of it during several months of the year when the atmosphere is so dry that no dew is deposited, woody plants are not richly represented. The forests are mostly Coniferous—Pine below, Picea and Tsuga in the middle belt, Larix and Abies towards the tree line. On south slopes, too, there is a good deal of gnarled Oak, forming small evergreen forests; mixed forest is confined to the sheltered valleys and deep gloomy ravines.

Rhododendrons, with other woody plants, suffer by comparison with those of the country to the west of the Yangtze, where the rainfall not only grows rapidly heavier, but is more evenly distributed throughout the year.

There are about 40 species of Rhododendron known from the Muli district, distributed amongst various sections, particularly Intricatum and Campylocarpum. Many, if not most of these, necessarily grow directly on limestone, *e.g.*, R. sinolepidotum, R. cephalanthoides. The limestone, which is often crystalline, is probably a double carbonate of calcium and magnesium, allied to dolomite; it is not "chalk."

In this region, with its thin and meagre forests, alpine plants abound, and achieve perfection. There are about 50 species of Primula alone in the Muli district (see Fig. 130), the sections Nivalis, Muscarioides, Candelabra and Malvacea being especially well represented. Poppies are represented by five or six species, of which Meconopsis Henrici (?) is the most striking. There are numerous species of Iris, Lilium, Cremanthodium, Campanula, Gentiana, Cyananthus, etc.; but the most wonderful of all high alpine rock plants is undoubtedly Myosotis Hookeri, a large, cushion plant studded with azure-blue flowers. This Forget-me-not, curiously enough, grows on almost any rock but limestone.

FIG. 132.—THE HEADQUARTERS OF THE IRRAWADDY RIVER.

Turning westwards from Muli, the Yangtze is crossed, the lofty Yangtze-Mekong divide with its snowy peaks, and the Mekong river (see Fig. 131). Here the forests contain a larger proportion of deciduous-leaved trees, and there are more species of Rhododendron, belonging to new sections.

While the country east of the Yangtze has been heavily glaciated, there are not many snowy peaks remaining, at least in the southern part. West of that river, however, in the narrow belt of country where the four great rivers, the Yangtze, Mekong, Salween, and Taron come galloping down from the north, are many snowy ranges overlooking the river gorges; but here, too, are signs of extensive glaciation in the past, the ice cap having retreated many miles.

After crossing the next range—the Mekong-Salween divide, we come down to the Salween river, and everything changes. Mules can be taken no further, and all the heavy kit has to be abandoned and sent down by the main road; with reduced loads, porters were engaged for the journey through the Irrawaddy jungles. The scenery changes. Instead of the splintered limestone ranges of the Tibetan Marches, we find the rounded, billowy, igneous ranges of the drenched Irrawaddy (see Fig. 132). The v
tation changes. Instead of the stark fo
which fledge the lower slopes of the Mar
with the bald towers and spiky turrets of
mountains breaking through them, the ign
ranges are covered with the soft green plus
the jungle, East of the Yangtze the flor
Chinese; west of the Salween it is as defin
Indo-Malayan. The people change. The f
Tibetan highlanders are replaced by the
and small men of the jungle—dwarf Nungs,
provided even with the necessities of life,
Lisus, men of the cross-bow, and Shans,
scattered remnants of a once great people.

After crossing the Salween gorge, the
great barrier has to be climbed—the Salv
Irrawaddy divide, with its snow peak,
Gomba La—before descending to the fu
Taron, the eastern (main) stream of the mi
Irrawaddy. And now begins the long m
through the overwhelming jungle. There
no more flowers, save epiphytic Orchids;
Rhododendrons abound. The multitudi
rivers are cossed by "monkey" bridge o
cane bridge; and finally the traveller rea
the plains near the sources of the wes
Irrawaddy. Thence, turning south, railhea
reached in fifteen marches, following
western branch of the Irrawaddy to below
confluence.

NATIONAL TULIP.

May 8 and 9.—The annual show of
special floral society was held in conjun
with the R.H.S. fortnightly meetings on
dates. The exhibits were rather more num
than on some former occasions, but it was
a very small show, though the general qu
was quite good. As usual the flowers
shown on boards, and there was no indic
as to the requirements or objects of the se
classes.

On some former occasions we remembe
addition to the classes for blooms show
boards, a class for a decorative exhibit of T
when Messrs. Barr and Sons generally
awarded the first prize for a collection of
blooms which would illustrate the real de
tive value of the Florists' Tulip. But this
such a class did not seem to have been arra

In the premier class, which was evidentl
twelve "Rectified" blooms, there were
exhibits, and the first prize was won by S
Hall, with a very good collection whic
cluded, in a splendid bloom of Attraction
premier bizarre bloom. Cecil Dollin
feathered bizarre, Elvira, flamed rose,
Garibaldi, feathered bizarre were also pa
larly good specimens in this fine set.
J. W. Bentley, who was second, included
Barlow, premier bybloemen, in an even
blooms; Mr. W. Peters was third.

Mr. J. W. Bentley was first with six blo
this exhibitor had excellent specimens of
port, flamed bybloemen, and Wm. An
feathered bizarre. Sir D. Hall was se
and he had a particularly fine bloom of
Barlow, fl. biz. Mr. Bentley also won the
prize for three feathered, three flamed an
bloom each of feathered and flamed T
Mr. C. J. Fox was second in the two
named classes, and Mr. Peters was seco
the other.

The Breeder blooms were particularly b
ful, and of higher quality than we rem
having seen at a show for some time past.
C. W. Needham won both first prizes;
splendid set of six blooms included Glea
beautiful Rose with yellow base, which wa
Premier Breeder, and Ida Sutton, byblo
In the class for three blooms he showed
finder, a Rose breeder with more yellow th
Gleam. Mr. C. J. Fox was second in
class, and Mr. W. J. Bentley was sim
placed in the class for six breeders.

The Florists' Tulip has a remarkably int
ing history, and this annual exhibition, sm
it may be, serves to keep these inter
flowers in being, and at the same time e
the flower-loving public to see standard va
of the various types which have been dev
by enthusiasts.

ROYAL HORTICULTURAL.

Trial of Winter Flowering Carnations at Wisley.

HE following awards were recommended by a
ging Committee, representing the R.H.S.
ral Committee and the British Carnation
iety, after examination of the growing
nts on four occasions, spread over two
ter seasons, 1921-2, 1922-3.

he awards are recommended solely on the
ue of the plants for flowering between
ober and March, and take into consideration
n and colour of the flowers, habit, vigour,
stitution, and floriferousness of the plants.
y are not intended to mark their value as
ibition flowers nor as summer flowering
its.

wards of Merit.—1, 2.—*Wivelsfield White,*
by Messrs. Allwood Bros. and Mr. C.
elmann. 3, 4.—*White Wonder,* sent by
srs. Allwood Bros. and Mr. C. Engel-
n. 16.—*Iceberg,* sent by Mr. Jones.
36.—*Mrs. Walter Hemus,* sent by Messrs.
wood Bros. and Mr C. Engelmann. 86,
—*Enchantress Supreme,* sent by Messrs.
wood Bros. and Mr. C. Engelmann.
—*Bona.* 132.—*The Herald.* 141.—*General*
fre. 154.—*Aviator.* 228.—*Jazz* (all these
sent by Mr C. Engelmann). 158, 159.—
umph, sent by Messrs. Allwood Bros. and
C. Engelmann. *250.—*Atlantic.* *251.—
nic (both sent by Messrs. Allwood Bros.).
ighly Commended.—5, 6.—White Enchan-
s, sent by Messrs. Allwood Bros. and Mr.
Engelmann. 10.—White Pearl, sent by
srs. Stuart Low and Co. 28.—Sunstar,
by Mr. C. Engelmann. 29, 247.—Jessie
ood. 38.—May Day. 79, 80.—Delice.
-Lady Northcliffe. 99.—Nora West. 106.—
nham Beauty (these six sent by Messrs.
wood Bros.). 138.—Elspeth, sent by Mr.
F. Hamilton. 149.—West Hall Scarlet, sent
Mr. G. Carpenter. 171, 172.—Bishton
ıder. 174, 175.—Mikado. 184, 185.—
elsfield Claret. 200, 201.—Wivelsfield
ıder. 205, 206.—Benora. 211, 212.—
elsfield Beauty (these six sent by
srs. Allwood Bros. and Mr. C. Engel-
n). 194, 195.—Countess of Wilton, sent by
C. Engelmann and Messrs. Stuart Low
Co. 215.—Harlequin. 218.—Fanny. 236.
na. 223.—Fancy Carola (these four sent by
C. Engelmann). 234.—Claremont, sent by
F. A. Jones. *252.—Gigantic, sent by
srs. Allwood Bros.

SIDE (ABERDEENSHIRE) FIELD CLUB.

HE summer session of this club was inaugu-
d on Saturday, the 12th inst., by an excur-
to the beautiful district of Banchory, some
ıiles from Aberdeen and Invercannie, where
tuated the waterworks which supply the city
berdeen. Arriving at Banchory, the party
e to Invercannie, where they were met by
convener, Councillor Ness, of the Aberdeen
er Committee, and the water engineer, Mr.
ge Mitchell, M.Inst.C.E., F.G.S. The last-
ed gentleman acted as guide, and explained
huge undertaking, to the evident interest
l. Returning to the Parish Hall, Banchory,
party had tea, and at a business meeting
wards 30 new members were admitted. The
rsion programme for the season was out-
. Mr. Wood has invited the club to visit
sel on June 16; on July 7 it is proposed
isit Braemar, where the river Dee has its
ce; and on August 8 Loch Kinnord, on
l Glentanar's Deeside estate. Mr. Joseph
uharson, R.A., sent a cordial invitation to
Finzean House on September 7; thus the
ner programme is practically completed.
eafter the club listened to an instructive
ess by Mr. J. W. Mackay, Aberdeen district
t officer, on "The Work of the Forestry
mission." Dealing with the north-eastern
of which Aberdeen is the centre, Mr.
kay said the total acreage planted up to
was 2,731 acres, none of which would have
planted had there been no State forestry
rtment. The schemes of the Commissioners
his area were: County of Nairn—Culbin
Sands, 3,500 acres; Monaughty, 1,798 acres; Tiendland, 1,000 acres. Aberdeenshire—Kirkhill, 488 acres. Forfarshire—Part of Montreathmont Moor, 756 acres; a total of 7,542 acres. There are two large central nurseries, Craibstone and Seaton, of 23 and 35 acres respectively. Mr. Mackay hoped in the near future to arrange a visit by the club to these areas.

THE WEATHER.

THE WEATHER IN APRIL.

April was an even more remarkable month for easterly winds than March had been, and the combination of the two is absolutely unprecedented, so far as the Southport records extend—now over fifty-two years. Temperature, however, was nearly normal in most respects, the mean direction of the wind being a little to the south of due east, and currents from all the northerly points being deficient. (The same southerly element in the east winds were still more pronounced in March.) The weather was rather dull, and there was a decided excess of rainfall. Ozone was deficient. The mean temperature of the complete month was 46.0°, or a trifle of 0.3° above the average. The duration of sunshine aggregated 153 hours, or 16½ hours less than the normal. Rain fell on 14 days—the usual number—but the total amounted to 2.61 inches, or 0.78 inch above the average. Barometric pressure was very low. Ground-frost occurred on 10 nights, and on the morning of the 24th the grass minimum thermometer fell to 19°. and there was frost in the shade also, much damage being done. Only on one day (the 26th) did the wind attain gale-force. A slight thunderstorm on the afternoon of the 14th was the sole other occasional occurrence. *Joseph Baxendell, The Fernley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

"Sunny April" opened with a succession of seven practically sunless days, and closed with the low average of 3 hours of sunshine per day. The mean temperature was two degrees below the normal, while the minimum (night temperature) was slightly higher, and the maximum fully 4° lower than the normal means. The rainfall was high, being 2.16 inches for 17 days, against a normal of 1.70 inch for 13 days; the 10th was the wettest day with 0.72 inch. Of bright sunshine, we had an aggregate of 91.6 hours, an average of 3 hours per day, and a percentage of 22; there were 9 sunless days. With a mean of 29.81 inches the barometer varied from a highest of 30.28 inches on the 2nd to a lowest of 29.12 inches on the 26th. The mean temperature for the month was 42°, with a mean maximum of 47° and a mean minimum of 37°. The highest maximum of 56° was recorded on the 29th, and the lowest minimum of 30° on the the 24th; on one night only did the temperature fall below the freezing-point. With a lowest of 27° on the 24th and 28th, the mean minimum was 35°; there were 6 nights of ground frost. At 1 ft. deep the soil temperature was 45° on the 1st, thereafter it fell to 42°, and with fluctuations rose again to 45° towards the end of the month. Strong winds were frequent, mostly from the north and east. *John Davidson, St. Andrews Provincial Committee at the Training College Gardens, Mayfield, Dundee.*

ANSWERS TO CORRESPONDENTS.

Arums Diseased: *Moorpark.* From your description the plants appear to be affected with soft rot of Calla. The cause of the disease is a Bacterium called Bacillus aroideae. This organism occupies the intercellular space in the host and dissolves the layers that connect the cells, causing the affected tissue to break down into a soft slimy mass. No cure has yet been discovered, but the disease may be prevented by a careful selection of the corms and by changing the soil in the beds every third or fourth year. See also reply to *T. S.*, p. 266.

Arum Lily with Double Spathe: *W. J. H.* Duplication of the spathes of an Arum Lily is of fairly common occurrence, and we annually receive several specimens somewhat similar to the one shown in the photograph you sent us.

Cactus Dahlias from Seeds: *H.* You must not expect to obtain a large percentage of seedlings from the sowing you have made, as the seeds of Cactus Dahlias do not germinate very successfully. The seedlings should be pricked off either singly in small pots or several in a larger receptacle, and placed in a box with a sheet of glass on the top until they are established. Great care in watering is needed, especially in the early stages, and the glass should be removed for an hour each day to change the atmosphere of the box; after a period of a few days the glass may be dispensed with altogether. The plants should be gradually hardened off and be ready for planting in the open in June. Well-grown specimens should bloom in their first season.

Digging: *H. F. H.* You may adopt two methods in digging your plot of ground, the one by taking out a trench, removing the soil which is excavated to the opposite end, and then working across the plot until the whole is completed. The other method consists in marking the plot down the middle, taking out a trench across the half of the plot at one end depositing it on the opposite side. The digging may be proceeded with down one side and then the other until the last trench is filled in with the soil excavated from the first one. The latter method results in a saving of labour in not having to remove the soil from one end of the plot to the other. Commence by digging out the ground a good spit deep, holding the tool almost perpendicularly, and inserting the blade to its full depth by pressure of the foot. With regard to placing the soil on the right hand or left hand of the operator, and digging with the left hand or right hand uppermost respectively, you can adopt whichever method seems most natural to you; many men can dig either way. Digging is an art that requires much skill and long practice, in order to obtain perfectly straight furrows and a level surface.

Diseased Dendrobiums: *T. B. A.* Your Dendrobiums are badly affected with spot disease, which is attributable either to too much or too little water during the winter months, with a low temperature heavily charged with moisture at that season. As the disease is spreading it would appear that the conditions of growth are not satisfactory, and as a remedy we suggest greater attention to the provision of heat, light and air. If the specimen sent is a fair sample, we believe the plants are beyond cure, but possibly, should they start into growth, it will be advisable to shake the compost from the roots and repot the plants in a clean, fibrous compost, placing them in the smallest receptacles possible, and cut away affected bulbs. When growth is completed, ripen it thoroughly by exposure to full sunlight. The temperature of 58° to 60° should be quite satisfactory during the resting period provided there is no humidity in the atmosphere. Only just sufficient water should be given the plants to prevent shrivelling; should any plant shrivel it is a mistake to give it an excess of water with the object of plumping up the pseudo-bulbs. You do not state whether the plants affected belong to this species or if other species are affected. We should like to know more of the prevailing conditions.

Eggs on Apple Tree: *E. L.* The eggs are those of the Lackey Moth (Clissiocampa neustria). It is necessary to destroy all the bands of eggs, and to spray the trees within three weeks after the dropping of the petals from the flowers. Lead arsenate (1 lb. paste to 20 gallons water) is the best insecticide to use, and the wash should be applied through a fine nozzle, giving a light dressing to every leaf on the tree. Thick grease bands placed around the trunks of the trees will prevent any of the larvae that may be on the ground from ascending again.

Employment at Kew: For the purpose of obtaining employment in the Royal Gardens, Kew, you should make direct application to the Curator, Royal Gardens, Kew, Surrey.

Flame Flower: *J. H. B.* The Flame Flower is Tropaeolum speciosum, and its tuberous root is quite hardy. For the successful cultivation of this handsome climber, the tubers should be planted in a position where they will be cool and shaded from direct sunshine. The plant does not grow freely in any and every position, and is not always easy to establish, but once established it grows very freely and looks particularly well when covering an evergreen hedge, such as one of Holly.

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* Perpetual-flowering Malmaison types.

Fuchsias Failing to Break Satisfactorily: *E. S.* It is very probable that you have kept the plants excessively dry so that they have become very hard. In this case it would be advisable to spray them at frequent occasions to make the bark soft and favour the development of the dormant buds. If you could plunge the pots in a hot-bed, this would favour growth at the roots, and the moist, warm conditions provided by the dung would be likely to favour top growth also.

Malformed Nectarine Fruits: *M. H. M.* There is no disease on the Nectarines sent us. The rough and cracked apices of the fruits are caused either by green fly or thrips, possibly the latter, just after the fruits were set. Fumigate the house or syringe the trees with quassia extract on alternate nights. In thinning the fruits finally, select those which are smooth and free from any signs of cracking. Provide a little ventilation early next morning after syringing the trees, and spray the trees freely with soft water before the sun gains much power.

Names of Plants: *J. O. M.* Pieris formosa. —*A. G.* 1, Too withered to identify; 2, Phlomis fruticosa; 3, Veronica Traversii; 4, Fabiana imbricata.—*E. S. G.* 1, Aucuba japonica var. longifolia; 2, Drimys Winteri; 3, Raphiolepis ovata; 4, Magnolia conspicua; 5 and 7, too small to identify; 6, Piptanthus nepalensis.—*D. M.* 1, Berberis stenophylla; 2, Cupressus Lawsoniana; 3, Berberis Aquifolium var. aldenhamensis; 4, B. canadensis; 5, Fabiana imbricata; 6, Pyrus Aria; 7, Viburnum dentatum; 8, Phillyrea decora; 9, missing; 10, Berberis Hookeri var. viridis; 11, Kerria japonica var. flore pleno.—*S. W.* 1, Berberis Darwinii; 2, B. stenophylla; 3, Tiarella cordifolia.—*J. H.* Campanula Steveni.—*W. T. B.* 1 and 2, forms of Primula denticulata.—*L. S. A.* 1, Anthriscus sylvestris (Beaked Parsley); 2, Barbarea vulgaris (Winter Cress or Yellow Rocket).

Propagation of Primulas, Polyanthuses and Alpine Auriculas: *H.* The usual practice is to divide these plants as soon as they have finished flowering and are about to make fresh roots. It is essential, however, that they should not be placed in a dry situation exposed to the sun. If they are grown in a shady spot, preferably on a north border, and kept well watered, the divided portions will soon become established and make good specimens. These plants may also be divided and replanted early in October or in the spring before they commence to flower.

Tomatos Diseased: *Lycopersicum.* The Tomato plants are suffering from "Damping off" or Foot rot, caused by Phytophthora cryptogea. The disease may be prevented by sterilisation of the soil, water, boxes and pots, by heat, or by means of a 2 per cent. solution of formaldehyde. It is also possible to stop an epidemic of this disease by watering the plants with a solution of "Cheshunt Compound."

Soil for Examination: *Miss A.* If the material is merely wood ash it should not have injured your seedlings; you would be well advised not to use it for such a purpose again. It would be better to use a small quantity in the open garden, and watch its affects on the plants, whether they benefit or not by it. It would not be worth the expense of having it analysed unless you have a considerable quantity, in which case we advise you to apply to Dr. J. A. Voelcker, Royal Horticultural Society's Garden, Wisley, Ripley, Surrey.

Communications Received.—J. F. S.—C. W.—C. L.—E. W. S.—K. McD.—W. L.—H. M.—F. W. J.

MARKETS.

COVENT GARDEN, Tuesday, May 15.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—Victorian, N. S. Wales, Tasmanian & W. Australian	
—Cox's Orange Pippin ..	14 0–16 0
—Ribston Pippin	10 0–12 0
—Jonathan ..	10 0–11 0
—Cleopatra ..	13 0— –
—Worcester ..	11 0–12 0
New Zealand	
—Jonathan ..	11 0–12 0
—Dunn's Seedling	11 0–12 0
—Cleopatra ..	14 0–14 6
—Others ..	10 0–12 0
Bananas, singles	16 6–27 0
—doubles ..	22 6–30 0
Cherries—	
Half-sieve ..	7 0–12 0
Box	2 6– 3 0
Figs special ..	10 0–15 0
best.. ..	6 0– 9 0
Gooseberries—	
—Devon, lb. ..	0 8– 0 9
—Kent, ½ sieves	14 0–15 0
Grapes—	
—New Black Hamburgh ..	4 0– 6 0
Grapes—	
—Belgian ..	3 6– 4 6
—English muscat	15 0–18 0
Grape Fruit—	
—Jamaica ..	— —25 0
Lemons—	
—Messina boxes	8 0–10 0
" cases	15 0–18 0
—Naples ..	18 0–25 0
Melons, English and Guernsey, each	5 0–10 0
Nuts—Brazils ..	45 0–47 6
Oranges—	
—Denia ..	18 0–25 0
—Murcia ..	18 0–25 0
—Jaffa	12 0–17 0
Peaches—	
—English, doz...	18 0–36 0
—Belgian doz...	8 0–12 0
Pineapples, case	14 0–40 0
South African	
—Grapes	
Raisin Blanc..	10 0–12 0
Lady Downe's Seedlings ..	– —15 0
Strawberries spec	12 0–14 0
" best	6 0–10 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, bundle	
—Special Devon	12 6–16 0
—Spec. Evesham	12 6–21 0
—Best " ..	6 0–10 0
Beans—	
—Guernsey, lb.	1 3– 2 3
—Madeirabasket	2 0– 4 0
—Worthing ..	1 6– 2 3
Broad Beans, pad	3 0– 3 6
Beets, cwt. ..	2 6– 4 0
Cabbage, dozen	1 6– 2 6
Carrots cwt. ..	2 0– 3 0
—New, dozen ..	8 0–10 0
Cauliflowers, doz.	3 0– 5 0
Cucumber, Flat	14 0–20 0
Greens, bag ..	1 3– 2 0
Lettuce—	
—English ..	1 0– 2 0
—Dutch, crate..	3 0– 3 6
Marrows, doz...	10 0–18 0
Mint, doz. ..	3 0– 6 0
Mushrooms, lb.	1 6 –2 6
Onions—	
—Dutch, bag ..	3 0– 4 0
—Egyptian ..	8 6– 9 6
Onion.	
—English, cwt.	5 0– 6 0
Parsnips, cwt.	2 6– 3 0
Peas, lb. ..	
—Guernsey ..	1 3– 2 6
—French, pad..	6 0– 8 0
Potatos,	
—Canary Island case	8 0–10 0
—Spanish, cwt.	28 0–30 0
—Guernsey, new, lb.	3½– 0 4
—Jersey ..	3½– 0 4
—King Edward	£3 –£3 5
—Others ..	£2 5–£3 0
—Natural ..	5 0– 7 0
Radishes, doz...	0 6– 1 3
Spinach, bushel	3 0– 3 6
New Turnips, doz. bunches ..	8 0–10 0
Tomatos—	
—English ..	12 0–14 0
—Pink and Pink and White ..	12 0–14 0
—White	10 0–16 0
—Blue	10 0–14 0
—Guernsey ..	11 0–12 0
—Canary Islands	15 0–25 0

Remarks.—In some directions the cold weather has had a disturbing effect on the demand, and the previous improved buying was brought almost to a standstill in the case of certain subjects. English Tomatos have declined considerably in value. large quantities of Guernsey Tomatos further unfavourably influencing prices. Cucumbers are a fair trade, and have maintained a good price, owing to sharp depreciation in quantities. Moderately large stocks of Australian, Tasmanian and New Zealand Apples are on offer, and their prices are moderate. Grapes, Strawberries, Peaches, Nectarines and Figs are in better supply, but the inquiry is not brisk. Forced Peas and Beans have been in firm request, and are quoted firmer. The cold weather has checked supplies of Asparagus, and prices have been at a higher level. Marrows are in shorter supply and much wanted Mushrooms are very stable in both quantities and prices. Gooseberries are more plentiful, and with berries arriving from Kent prices are easier. French Cherries are plentiful and cheap, the cold weather retarding sales. Green vegetables are abundant and in fair demand. New Potatos from Jersey and Guernsey are a better trade, owing to smaller shipments from Spain.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz. ..	10 0–18 0
—elegans ..	10 0–12 0
Aralia Sieboldii..	10 0–12 0
Araucarias ..	30 0–48 0
Asparagus plumosus ..	12 0–15 0
—Sprengeri ..	12 0–18 0
Aspidistra, green	48 0–72 0
Asplenium, per doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Azaleas, 48's per doz.	30 0–48 0
—60's	18 0–24 0
Boronias ..	21 0–27 0
Cacti, per tray, 12's, 15's ..	5 0– 7 0
Cinerarias 48's per doz. ..	10 0–15 0
Crotons, per doz.	30 0–42 0
Cyrtomium ..	10 0–15 0
Erica melanthera	
" 48's per doz.	24 0–36 0
" nivalis 48 "	24 0–30 0
Erica nivalis	
" 60 "	10 0–15 0
" Thumbs "	6 0– 8 0
Genistas 48's per doz. ..	15 0–18 0
Heliotropes ..	15 0–18 0
Hydrangeas white & pink,	
—48's, doz. ..	24 0–30 0
Marguerites, per doz.	18 0–24 0
Mignonette ..	10 0–15 0
Nephrolepis, in variety ..	12 0–18 0
—32's	24 0–36 0
Palms, Kentia ..	24 0–30 0
—60's	15 0–18 0
—Cocos ..	24 0–36 0
Pelargonium ..	18 0–24 0
Pteris, in variety	12 0–21 0
—large 60's ..	5 0– 6 0
—small	4 0– 4 6
—72's, per tray of 15's ..	3 6– 4 0
Spiraeas ..	15 0–18 0
Stocks, White & Coloured ..	12 0–15 0

POT PLANTS.

Remarks.—This department is now open every morning for the sale of plants. Large supplies of bedding and decorative plants are now on the market, and all stands in this department will be occupied during the next two months, and business should continue fairly brisk. The supplies of Ferns and Palms are usually more limited during the time the former subjects being most in demand.

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum, decorum, doz. bun.	12 0–15 0
—cuneatum, per doz. bun. ..	8 0–10 0
Asparagus, plumosus, per bun.	
long trails, 6's	4 0– 5 0
med. sprays ..	2 6– 3 6
short " ..	1 0– 1 6
—Sprengeri, per bun.	
long sprays ..	2 6– 3 0
med. " ..	1 3– 1 6
short " ..	0 9– 1 0
Carnations, per doz. blooms ..	3 0– 5 0
Cornflowers, per doz. bun. ...	4 0– 6 0
Croton leaves, var., per bun.	2 6– 4 0
Gladiolus, per doz bun. ..	24–0 30 0
Fern, French per doz. bun. ..	1 0– 1 3
Forget-me-not per doz. bun. ..	4 0– 6 0
French Flowers	
Anemone, St. Brigid, mxd. per doz. bun...	4 0– 6 0
—Marguerite, yellow, per doz. bun.	3 6– 4 0
—Stock Double White per pad	6 0– 8 0
—Ranunculus, Scarlet, per dz. bun.	6 0– 7 0
Carmine per doz. bun. ..	8 0– 9 0
Scarlet, Romano large, per doz. bun.	10 0–15 0
double white per doz bun.	8 0–10 0
Heather, white per doz. bun.	4 0–10 0
Iceland Poppy, per doz bun...	2 6– 3
Iris tingitana, per doz. bloom	3 6– 4
—Ixia, per doz bun.	4 0– 8
Lilium speciosum long per doz.	6 0– 0
short " " ..	3 0– 4
Nigella, per doz. bun... ..	12 0–18
Lily of the Valley, per doz. bun.	18 0–36
Orchids, per doz.	
—Cattleyas ..	18 0–30
—Cypripediums	3 0– 4
Pelargonium, per doz. bunch, double scarlet	10 0–12
Richardias (Arums) per doz. ..	5 0– 7
Roses, per doz. blooms—	
—Melody ..	3 0– 4
—Ophelia ..	3 0– 4
—Richmond ..	2 0– 4
Smilax, per doz. trails	6 0– 7
Stock, per doz. bun. mauve ..	8 0–12
—white per doz. bun	8 0–12
Sweet Peas, per doz bun.. ..	6 0–18
Tulips, Single—	
—yellow, per doz. bun.	8 0–15
—pink, per doz. bun.	8 0–15
—scarlet, per doz. bun.	8 0–12
—mauve, per doz bun.	8 0–15
—Darwins in variety, per doz. bun. ..	8 0–15
Violas, per doz bun.	1 6–

Remarks.—In this department supplies have be shortened during the past week owing to the retu of colder weather, the shortage being most noticeab amongst Roses, Irises and Tulips, the first havin advanced again in price, although the blooms are excellent condition The most prominent varieties a Madame Abel Chatenay, Ophelia, Molly Sharman Crawford, Melody, Columbia, Richmond, Sunburst a Liberty. Carnations are also in excellent conditio and moderate in price. Cornflowers, Iceland Poppie Nigella (Love-in-the-Mist) and Gladiolus The Bride a improving in quality. Narcissus poeticus begins show signs of finishing. More attention is now bei given to double white Narcissus (flora plena). Larg consignments of these blooms are now arriving fro home growers and also from Guernsey. Double whi Stocks also find a ready sale. Richardias (Arums) a fewer, and good blooms are soon cleared. Lilium long florum is in good condition, and supplies appear suf cient for present requirements. Tulips are chiefly ou door grown, and the unfavourable weather conditio during the past few days will lessen the suppl During the coming week-end there should be a go demand for scarlet and white blooms for the Whit tide festivities.

GARDENING APPOINTMENT.

Mr. F. J. Radford, for the past three years Forem at Chilworth Manor Gardens, Romsey, Hampshi as Gardener to G. H. Winterbottom, Esq., Hort Hall, near Northampton. (Thanks for 2s. R.G.O.F. Box.—Eds.)

CATALOGUES RECEIVED.

Garden Supplies, Ltd., Cranmer Street, Liverpo Chrysanthemums; Plant Stakes.

D G. Purdie, 6, Waterloo Street, Glasgow.—Sum bedding plants, garden sundries, etc.

Storrie & Storrie, Glencarse, Perthshire.—Seed seedlings of florists' flowers

Skinner, Board & Co., Bedminster, Bristol.—" Tension" greenhouses.

Foreign.

O. M. Pudor, Puyallup, Washington, U.S.A.—Irise.

THE
Gardeners' Chronicle

No. 1900.—*SATURDAY, MAY* 26, 1923.

CONTENTS.

Alpine garden, the—
 Potentilla rupestris .. 285
Banana aphis, the .. 281
Briquet, Dr. J. I. .. 282
Bulb garden, the—
 Hybrid Watsonias .. 285
Caterpillars, a plague of 282
Chrysanthemum, insect enemies of the .. 282
Farmyard manure, a garden substitute for 290
Fire in an American nursery 282
Flowering, continuity of 291
Foresty Commissioners' Report 288
Forsythia, a new 282
Fruit garden, hardy—
 Pollinators for Cox's Orange Pippin .. 290
"Gardeners' Chronicle" seventy-five years ago 283
Gardeners' wages .. 291
Gardening in Central Africa 288
Garden notes from S.W. Scotland 286
Hemsley, Dr. W. B. .. 282
Manures, slow-acting .. 292
Orchid notes and gleanings—
 Cymbidium insigne Bieri 290
 Laelio-Cattleya Emily Methuen 290
 Odontoglossum Camden, Low's var. .. 290
Pear stock, a new .. 282
Plants new or noteworthy—
 Primula calciphila .. 283
 Sanguinaria canadensis var. mutiplex .. 283
Primula erythrocarpa .. 291
Purslane, Winter .. 292
Royal Gardeners' Orphan Fund 292
Sap, the ascent of .. 292
Seed orders, three eighteenth-century .. 286
Societies—
 Bath and West of England Agric. .. 293
 United Horticultural Benefit and Prov... 293
Solanum cinereum, poisonous properties of 281
Tree planting in the U.S.A. 282
Trees and shrubs—
 Solanum capsicastrum in the open .. 287
 Sollya heterophylla .. 287
 Two handsome Grevilleas 287
Vegetable garden—
 Manurial experiments at Droitwich .. 290
Week's work, the .. 283
Welsh garden, notes from a 286

ILLUSTRATIONS.

Achillea Kellereri 291
Entebbe Botanic gardens, view in the 289
Rose La France flowering in Central Africa .. 288
Sanguinaria canadensis var. multiplex 283
Solanum capsicastrum, fruiting branches of 287
Watsonias, new hybrid, in the Melbourne Botanic Garden 285

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 55.9°.

CTUAL TEMPERATURE :—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 23, 10 a.m. : Bar. 30; temp. 62°. Weather—Showery.

The National Botanic Gardens of South Africa. The National Botanic Gardens at Kirstenbosch, which bid fair to rank among the most important gardens of the world, are, and have been since their establishment, ampered by lack of funds. The garden is spacious one and to it has recently been dded a large tract consisting of the mounain slopes between Kirstenbosch and Wynberg. The total area of the garden and the forest reserve now annexed thereto is 500 morgen (1060 acres). To develop and superintend so large a garden a considerable staff is required, and for the staff, adequate accommodation is necessary. Private munificence has done not a little for the garden, and the Botanic Society of South Africa lends its owerful support to the cause of the garden's evelopment, but it is clear that Kirstenbosch must look to the Union Government for a largely increased measure of financial upport if the garden is to be maintained nd developed in a manner worthy of the ommunity to which it belongs. Unfortunately, South Africa, like most other ountries, has been passing through a period f depression, and economy has had to be ractised in all directions. Recently, in iew of the importance of obtaining an increased measure of financial support from the Government of South Africa, the National Botanic Gardens' Advisory Committee, after n exhaustive inquiry into the resources and eeds of the garden, reported that the annual grant from Government sources should be increased immediately from £1,500 to £3,500 and should rise by yearly increments of £500 to a maximum of £10,000. Speaking on behalf of a deputation of the Advisory Committee to the Minister of the Interior, Sir James Rose-Innes urged upon the Minister the claims of the garden for increased grants. He pointed out that the scientific facilities provided by the garden are very restricted, and that the scientific staff was insufficient. Although the Minister expressed strong sympathy with the objects of the deputation, he was unable to promise the assistance asked for, and, in point of fact, the Government of South Africa has not yet found itself in a position to increase the grant. We trust, however, that as prosperity returns, the garden at Kirstenbosch will receive a full measure of support from the Union Government. No garden in the world has greater possibilities and in none may a more varied and valuable collection of plants be cultivated. Moreover, although material benefits which a well organised garden bring to a country are indirect rather than direct, they are none the less real. On a sound and thorough knowledge of systematic botany, the choice of varieties suitable for cultivation depends. From the point of view of science, there is no need to insist on the important part which botanic gardens have played and are playing in the advancement of botany. In happy manner they combine the æsthetic and the economic, and no government can afford to ignore their importance in the life of a nation. Gardens such as that at Kirstenbosch act also as a continual source of inspiration to the youth of a country. Among those who visit these great, living collections of plants are to be found some who have their minds directed to the importance of science in the life of a people. From among them science gains some of its best recruits—men who increase knowledge and bring honour to the country that bred them. Wherefore, we trust that the means of developing Kirstenbosch may be forthcoming; with these means the garden will surely become one of the brightest ornaments of the Union and will in time to come attract visitors and students from all parts of the Empire. Although the Advisory Committee rightly looks to the Government for the help the gardens need, and although the private benefactor has not been ungenerous, we think that the endowment of the gardens might well appeal to the imaginative benefactor of large means; to secure for all time a garden such as that at Kirstenbosch to provide facilities for the discovery of botanical knowledge, and for the enjoyment of Nature, are objects on which any man might with much profit to himself and to the community bestow munificence.

Retirement of Mr. W. J. Grant.—Mr. W. J. Grant, director of Agricultural education for Monmouthshire, has retired after thirty-two years of continuous service. His interests have been spread over a number of subjects besides farming, for, after forming a dairy school, he started to give instruction in horticulture and fruit growing, and instituted classes for poultry. Some time ago he was awarded a silver medal by the Royal Horticultural Society, accompanied with a certificate of appreciation, in recognition of excellent work that had been done over many years in connection with the Potato in Monmouthshire. He was the pioneer of school gardening in Monmouthshire, and other subjects in which he interested himself include Rose growing, bee-keeping, the bottling of fruit, hedging and shearing classes, and the making of baskets. In conclusion, we may quote the following appreciation from the *South Wales Argus* in a notice of Mr. Grant's retirement:—"We hope that in the enjoyment of his own beautiful little garden, and in the exercise of his versatile but practical knowledge of all things that appeal to those who love the country, we shall for many a long day have among us one who is proud of being country-bred and born, and in the truest sense a son of the soil."

Value of Aluminum Sulphate in Soils for Rhododendrons. — *The National Nurseryman* states that Dr. Frederick V. Coville, botanist of the United States Department of Agriculture, has met with great success in the cultivation of Rhododendrons by treating the soil with aluminum sulphate. The effect of aluminum sulphate is found in the change the soil receives in reaction from neutral or alkaline to acid. It is claimed that, where soils have been so treated, the stimulation of the growth of Rhododendrons has been very great, as much as 250 per cent. increase in the diameter of the rosettes of seedling Rhododendrons having been secured. Experiments that have been in progress for several years have shown that soil acidity is required, not only for Rhododendrons, but also for Azaleas, Kalmias, and practically all members of the Heath family. Dr. Coville's experiments are interesting, in view of the success obtained by Dr. Small in rooting seedlings in soil to which acetic acid has been added, as described in *Gard. Chron.*, May 5, p. 244.

National Dahlia Society.—The annual exhibition of the National Dahlia Society will be held on Wednesday, September 5, in the Royal Horticultural Hall, Vincent Square, Westminster. The schedule includes fifty-five classes divided into several sections. The open classes number eighteen, and prizes are offered for Show and Fancy Dahlias, Cactus Dahlias, Garden Cactus Dahlias, Pompon Dahlias, Single Dahlias, large and small Paeony-flowered Dahlias respectively, and Collerette Dahlias. In the amateurs' section. eighteen classes are open to all amateurs and gentlemen's gardeners; four classes to amateurs and gentlemen's gardeners who have never won a first prize at any of the Society's exhibitions, and seven classes for amateurs who do not employ paid assistants. There are also classes for floral decorations. The most valuable prizes are in the open amateurs' and gentlemen's gardeners' classes. Copies of the schedule and particulars may be obtained from the Hon. Secretary, Mr. A. C. Bartlett, 318, Kew Road, Kew.

The Banana Aphis.—Cultivators of Bananas by the northern rivers of New South Wales and in Southern Queensland have a new pest to fight, or rather an old one, which has now appeared in their plantations. This is the Banana Aphis, Pentalonia nigro-nervosa, a species of aphis which was found infesting Bananas growing at St. Dennis (Bourbon) so far back as the year 1859. It is a pest which has also been found abundantly on Bananas under cultivation in glasshouses in the United States, but was probably imported from some country where the fruit is grown extensively. The Banana Aphis is reddish-brown, marked with black, and in the adult, winged forms, the nervures are delicately outlined with black, which gave rise to the very appropriate specific name of nigro-nervosa. The infestations of the Banana plantations in New South Wales and Queensland have given rise to considerable apprehension on the part of growers, some of whom believe that the deformity known as "bunchy top" is due to the presence of the aphis, but there is no direct evidence that this deformity is due to aphis. The *Agricultural Gazette of New South Wales* suggests that infested plantations should be sprayed with kerosene emulsion, or some other reliable specific.

Poisonous Properties of Solanum cinereum.—From observations made in New South Wales it would appear that the fruits, and possibly also the leaves, of the native Solanum cinereum are poisonous to stock. In one particular case where inquiry was made it was shown that of 1,100 sheep in a certain paddock, forty-five died as a result of eating the fruits of this plant. In all probability, sheep do not eat either the fruits or leaves of this species of Solanum whilst there is plenty of fresh grass or other green herbage, but during a dry period they turn their attention to the Solanum fruits, with fatal results. The subject is receiving the consideration of the authorities in New South Wales, on whose behalf Mr. J. H. Maiden has identified this Solanum, the native name of which is Narrawa Burr.

British Bulbs for the British Empire Exhibition.—We understand that an order has been placed for 100,000 British-grown bulbs to be planted in the grounds of the British Empire Exhibition at Wembley, for the purpose of providing a display in the spring of 1924.

Dr. J. I. Briquet.—The Director of the Geneva Botanic Gardens, Dr. John Isaac Briquet, who has been elected a foreign member of the Linnean Society, received part of his early education in Scotland. He is best known in the botanical world by his *Texte Synoptique*, which served as a guide to the International Congress at Vienna in 1905; his *Prodrome de la flore de Corse*; and his labours in connection with the Labiatae and the botany of Switzerland.

A New Pear Stock.—The *Bulletin* issued by the Arnold Arboretum for May 10 refers to the value of Pyrus Calleryana as a stock for Pears; it states that this Pyrus promises to be one of the most valuable plants introduced by the Arboretum into the United States. So far as has been determined, this stock is believed to be immune to attacks of the blight which has proved so destructive to garden Pear trees in the United States. Many thousand seedlings of Pyrus Calleryana have been raised by the United States Department of Agriculture and by different experimental stations, and the seedlings will be put to a thorough test as to their suitability as stocks for Pears. The species forms a handsome and shapely tree, and has grown rapidly in the Arboretum, where it has flowered and produced fruits for several years. Apart from its value as a stock, this Pyrus is said to be a valuable garden plant, on account of its large, white flowers and dark green foliage. The fruit is very small, being scarcely more than one-third of an inch in diameter.

British Agriculturists to Visit Sweden.—The Ministry of Agriculture is making arrangements for a party of British agriculturists to visit the show of the General Swedish Agricultural Society, which will be held on June 19-24 at Gothenburg, in connection with the jubilee exhibition and fair of that city. The British party will probably leave this country on June 11, and the itinerary arranged by the Swedish Government includes an inspection of the famous seed-growing station of Svalöf.

A Plague of Caterpillars.—According to the *Daily Express*, fruit orchards in south-east Kent have been visited by a plague of caterpillars, which have largely divested Apple and Plum trees of foliage. The district around Sandwich, including such noted fruit-growing centres as Woodnesborough, Goldstone, and Ash, has suffered most from this plague, and in one orchard alone the damage is estimated at £300. The fruit trees in this part of Kent were a wonderful spectacle when in bloom, and before the appearance of the caterpillars there was promise of remarkable crops.

Tree Planting in the United States.—The American Tree Association recently organised by Mr. C. L. Pack, formerly President of the American Forestry Association, has for its objective the planting of one million trees in the United States during the present year. There is no charge for membership, and anyone who plants a tree and registers it with the association automatically becomes a member, and the association at once sends a certificate of membership. Widespread efforts are being made to interest children in trees, and to encourage the planting of memorial trees, roads of remembrance, and memorial forests. Various business organisations are also assisting, and it is interesting to learn that one bank at Louisville, Kentucky, has given its clients trees for planting, with the result that it has secured 3,000 members for the American Tree Association.

Mr. Charles Pynaert.—A man of outstanding eminence and striking personality in Belgian horticultural circles, Mr. Charles Pynaert bears an honoured and revered name and has maintained the fame of his family. Under the guidance of his father he received a liberal general and horticultural education, which fitted him for the strenuous duties that have fallen to his lot. Horticulturists present at the recent Ghent Conference of the Fédération Horticole Professionelle Internationale thoroughly appreciated the splendid way in which Mr. C. Pynaert carried out the duties of president during the two-day sitting of the Conference. His urbanity and business ability enabled the Conference to get through the apparently overwhelming amount of business within the scheduled time. He was fully conversant with every point raised, and having, with Mr. L. Sander, attended the Plant Quarantine Conferences at Washington in 1922 and 1923, on behalf of the Belgian Government, he was able to give first hand information regarding the operation of "Quarantine Order No. 37," and he expressed the view that the U.S.A. Federal Board was not likely to amend the prohibitive order in favour of European nurserymen. It was on the death of his father in 1900 that Mr. C. Pynaert took full charge of the famous Pynaert nursery business at Ghent, and subsequently under his direction the whole business was reconstructed, and the nursery rebuilt at La Pinte in a manner and on a scale not previously attempted even in a city famous the world over for its extensive nurseries. In the same year Mr. Pynaert took over the direction of the *Revue de l'Horticulture Belge*, and in 1909, following the death of Count Oswalde de Kerchove de Denterghem, he became sole proprietor and editor in chief of that interesting and useful publication. Unfortunately the *Revue* had to be suspended owing to the war and circumstances have not permitted its re-publication since. Mr. Pynaert has been a member of the management committee of the Ghent Quinquennial Horticultural Exhibitions since 1900. For about ten years he has been a member of the Provincial Council of East Flanders, and it was on his proposition that this council allocated a considerable sum of money to enable the Belgian Government to complete its phytopathological service and to secure a special service for the destruction of Brown-tail Moth and Gipsy Moth in and around all nursery centres. A short time after the war Mr. Pynaert sold his nursery business to the Messrs. Van Houtte, but he still takes a very active part in all horticultural activities and remains president of the Chambre Syndicale des Horticulteurs Belges—the most important association of professional horticulturists in Belgium—a position he has held since 1919, although he is now engaged in a banking business. It is with great pleasure we present our readers with a portrait of Mr. C. Pynaert.

MR. CHARLES PYNAERT.

A New Forsythia.—Our American contemporary *Horticulture* records a new Forsythia, F. ovata, raised from seeds collected by Mr. E. H. Wilson, in Korea in 1918. The species flowers earlier than any other known Forsythia, is said to be unusually hardy, and is expected to succeed in parts of America where other Forsythias cannot be depended upon to bloom. The leaves are very broad for a Forsythia, being from three to four inches in width. The flowers are said to be Primrose-coloured.

Dr. W. B. Hemsley.—We are asked to state that Dr. Hemsley's new address is 9, Walmsley Road, Broadstairs.

Fire in an American Nursery.—The many friends of Mr. Wm. A. Manda in this country will regret to learn of the loss he has sustained by a fire in his nursery in New Jersey, the damage amounting to $20,000. The fire is supposed to have originated from sparks thrown out by a passing locomotive. The stock destroyed was principally trees, and the loss is the greater, as certain kinds, such as Japanese Cedars, can no longer be imported into America.

Insect Enemies of the Chrysanthemum.—*Farmers' Bulletin*, No. 1306, issued by the United States Department of Agriculture, is devoted entirely to Insect Enemies of Chrysanthemums, and the author, Mr. C. A. Weigel, of the Bureau of Entomology, states that, of the many insects known to attack and feed on Chrysanthemums, the most destructive in the United States are the Chrysanthemum Midge, the greenhouse Leaf-tyer, the black and green aphides, the common red spider, thrips, and white flies. He states that the Chrysanthemum Midge (Diarthronomyia hypogaea) is an insect of European origin, and was first reported in the United States in 1915. Since then it has become firmly established, and is now one of the most harmful of Chrysanthemum pests, causing thousands of dollars' worth of damage annually; indeed, it is now widely distributed over the entire country, and is probably the most serious enemy cultivators of Chrysanthemums have to contend with. The *Bulletin* extends to thirty-six pages, and practically all the pests enumerated are illustrated and fully described, while methods of control are detailed at some length. The preparation of suitable insecticides receives considerable attention, and a chapter is devoted to machinery for spraying and for the distribution of dry insecticides. At the end an interesting table deals with the use of hydrocyanic acid gas for the destruction of the various pests, and sets forth the amount of cyanide to be used in each case, the number of fumigations, and the length of interval between them.

Legacy to a Gardener.—The late Mr. Joseph Taylor, of Newstead, Blundellsands, Lancashire, who died on February 18, left a legacy of £200 to his gardener, Mr. Thomas John Portnall.

"**Bulletin**" **of the Chamber of Horticulture.**—The issue for May, 1923, being Part 4 of Volume I. of the *Bulletin* of the Chamber of Horticulture, contains several excellent illustrations of the exhibits in the British section at the recent Ghent Exhibition, together with a full account of the exhibitors and exhibits of the British section. Some very useful notes on keeping accounts in horticultural businesses are contributed by Mr. Geo. Cobley, F.C.A., who sums up his remarks with the statement that good accounting systems give up-to-date and accurate information—information leads to owledge and knowledge leads to success. gures and accounts may often tell the grower at he knows already, but he will not study d use them long before he learns a great al he did not know before. A full-page rtrait of Mr. Joseph Rochford, J.P., accom- nies a biographical article of that gentle- an, the founder of the world-famous firm of seph Rochford and Sons, whose nursery ex- nds to over 200 acres, 43 of which are under ass. Mr. Rochford is a Yorkshireman, and started a business for himself in 1882 when years of age. At that time the Tomato as being introduced to Covent Garden Market a desirable salad, and he commenced the ltivation of the Tomato, building house ter house for the purpose, and he also en- ged in the cultivation of Grapes, Peaches, d Cucumbers. To-day his firm employs one the largest staffs in the industry, and his oduce has a reputation in the market for its e quality and high standard of grading and cking. Mr. Rochford was one of the founders the Nurserymen's, Market Gardeners' and neral Hailstorm Insurance Corporation, and s valuable advice as to fair rates, insurance crops and cash settlement of claims has ought great benefit to many nurserymen. e has for many years been a valuable sup- rter and a member of the committee of the ardeners' Royal Benevolent Institution. He a Justice of the Peace for Hertfordshire, d was for many years a member of the ertfordshire County Council. Amongst the iscellaneous articles in the *Bulletin* are those the meeting of the International Commercial orticultural Federation held at Ghent; on pre- rential railway rates, by Sir Herbert atthews; particulars of the Imperial Fruit ow to be held at Manchester; and various tes of horticultural interest.

Appointments for the Ensuing Week.—iesday, May 29: Royal Horticultural Society's ring exhibition at Chelsea (3 days) ednesday, May 30: Mitcham, Tooting and istrict Horticultural Society's meeting; Kew uild annual meeting and dinner; Royal Coun es Agricultural Society's Show at Southampton days). Saturday, June 2: Darwen and istrict Agricultural Association's show; Black- rn and District Horticultural Society's eeting.

"Gardeners' Chronicle" Seventy-five Years go.—*Revival of Potato Culture in Ireland.* e learn with regret, but without surprise, that e cultivation of the Potato has been revived Ireland, and with augmented eagerness. The ost trustworthy accounts agree in representing at an enormous extent of land is already opped with it. The peasantry have even been lling their clothes, their bedding, and, in short, ery saleable thing, in order to procure seed this calamitous plant. The inevitable result ust be sooner or later a renewal of the famine hich has covered the land with such indes- ibable horrors. There seems to be a confident elief among the Irish that the Potato disease as worn itself out, and they are probably right. has been obvious that the plant has been nproving in health for some time; and a sound op may be reasonably counted upon for a little hile; but for how long no one can say. What spectacle! to behold a whole nation so destitute resources and so reckless of consequences as stake their existence upon the cast of a die; r a Potato crop is little better. If the throw against them where will the nation be? We annot but regard this renewal of confidence in e Potato crop as one of the worst signs that ave yet appeared in Ireland, where it must be dmitted that dangerous symptoms are not un- ommon. It is some consolation, however, to nd that light is breaking here and there through he gloomy future. It is certain that the Irish re not hopeless and helpless in all directions. n spite of difficulties, we are happy to find that he cultivation of other crops is progressing and some instances with rapidity.—*Gard. Chron.*, ay 20, 1848.

Publications Received.—*Plant Names.* By . S. Lindsay. The Sheldon Press, Northumber- nd Avenue, W.C. Price 2s. 6d. net.

PLANTS NEW OR NOTEWORTHY.

SANGUINARIA CANADENSIS VAR. MULTIPLEX.[*]

One of the prettiest plants which I have seen in blossom this spring is a new form of the well-known Blood-root (Sanguinaria canadensis). A clump planted at the foot of a rockery in the nursery of the Arnold Arboretum had more than fifty fully expanded blossoms on April 21. The plant was sent to the Arnold Arboretum by Mr. L. van Webern, of Dayton, Ohio, in the autumn of 1919, and has blossomed freely each succeeding spring.

The flowers are from $2\frac{1}{2}$ inches to $2\frac{3}{4}$ inches across; both stamens and pistil are changed into petals, of which there are forty-eight to each flower. The outside of the outer petals is slightly tinged with pink, otherwise the flowers are of the purest white and extremely lovely.

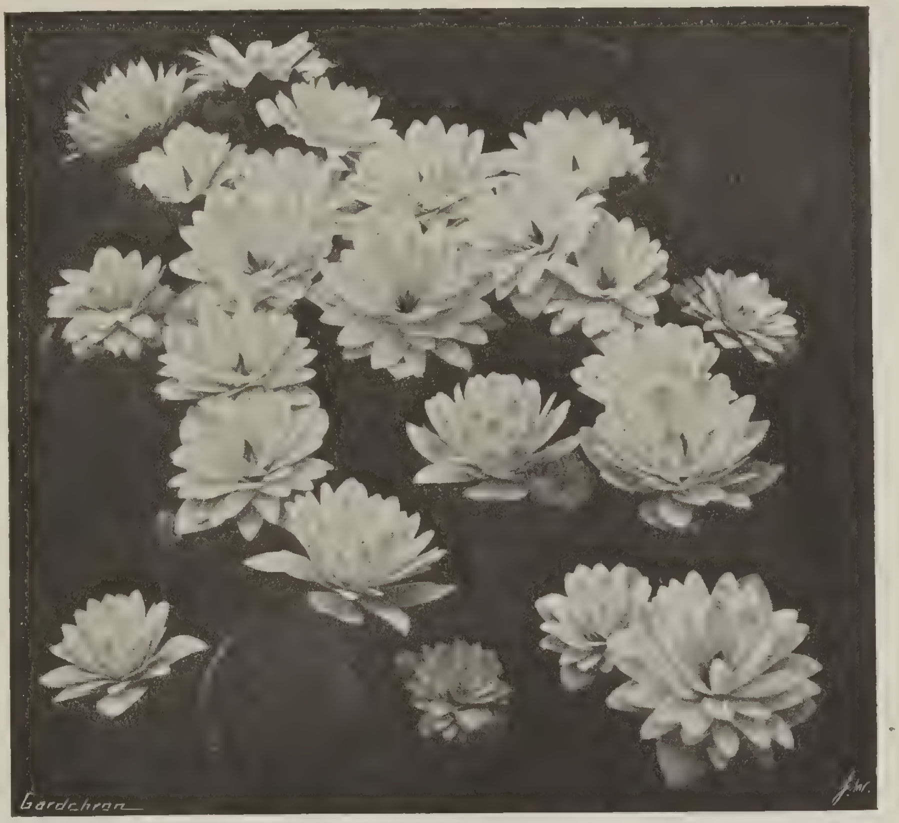

FIG. 133.—SANGUINARIA CANADENSIS VAR. MULTIPLEX.

The Blood-root was supposed to possess medicinal properties of great value, and on this account was highly esteemed by the ancients. It was among the earliest of plants introduced into England from America. The first reference to it that I have found is in Jacques Cornut's *Historia Canadensium Plantarum*, 212 (1635), where a short account of the plant is given under the name of Chelidonium maximum canadense. Under this same name it is mentioned by Parkinson on page 619 of his *Herbal* published in 1640, but earlier on page 326 of the same work Parkinson figures it under the name of Ranunculus virgineus albus, the "White Virginian Crowfoot." Dillenius in his *Hortus Elthamensis*, II. 334, t. CCLII. fig. 326 (1732), figures three forms under the names of Sanguinaria major, major flore pleno and minor. His flore pleno has apparently fourteen to sixteen petals, that is double the normal number. It is this plant that is referred to in various books under the name of Sanguinaria canadensis plena, a name given by Weston in his *Botany*, III., 610 (1772). In the new form "multiplex" the multiplication of petals has been carried to a greater extent, and the whole of the stamens and the pistils have been converted into petals. For garden purposes this is decidedly a superior plant; the photograph I send (Fig. 133) shows how floriferous the plant is and the neat form of the flowers.

The Blood-root is among the most attractive of the earlier flowering plants, and, although the petals fall quickly, when grown in a mass as it is usually found in nature fresh flowers continue to appear for several days.

The plant thrives in well-drained soil, but it needs moisture with some shade, and it does best where it can revel in peat and leaf-mould. This plant is common in eastern North America, and is plentiful around Niagara Falls. *E. H. Wilson, Arnold Arboretum, Harvard University, U.S.A.*

PRIMULA CALCIPHILA.

In reference to the notes on Primula sinensis accompanying my description of Primula calciphila in the *Kew Bulletin* (1923, 97), reviewed in *The Gardeners' Chronicle*, May 5, p. 239, I have received a note from Mr. James Britten calling my attention to his short note on P. sinensis in the *Journal of Botany*, 1897, p. 426. I disclaimed any intention of having dealt with the literature relating to P. sinensis, but Mr. Britten also states in his letter that when he was incorporating Hance's herbarium he marked on Watters' specimen in the Natural History Museum "different species," and he asks me whether it is really the same as Henry, 1292, the only specimen of P. calciphila at the museum.

I have now examined Watters' specimen and have no hesitation in pronouncing it to be rather a poor example of the common P. obconica, Hance.

As Watters' specimen had been associated by all previous authors with the so-called wild plant of P. sinensis, I never suspected that it might be different, and neglected the precaution of examining the specimen for myself. The reference to Hance on page 101 of the *Kew Bulletin* should therefore be deleted. *J. Hutchinson, Kew.*

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[*] *A typo et a forma plena recedit staminibus carpellisque omnibus in petala mutatis. Wilson n. forma.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Epidendrum vitellinum.—Both the summer flowering and autumn-flowering varieties of this brightly-coloured Orchid may be grown in a cool house the whole year round. Many failures to cultivate these plants successfully may be attributed to the use of too much fire-heat; and an excess of water at the roots, especially during the winter, as very little moisture is needed when the season of growth is completed. Few Orchids will endure a much lower temperature provided the atmosphere and compost are in a dry condition. Repotting is best done when the new growths are about to develop roots. Shallow pans half-filled with drainage material form the best receptacles, and a compost composed of any of the fibres used for Orchids provides a suitable rooting medium.

Summer Quarters.—It is a suitable date to remove those Orchids that delight in an equable temperature the whole year round, to cooler quarters. For some little time after removing them it is advisable to keep the plants slightly drier at the roots than they have been in the warmer division. It is always advisable when a plant refuses to make reasonable headway to experiment with it in selected positions of shade, warmth, and moisture. Amongst the best-known species which benefit from a cooler treatment in summer may be included Laelia pumilea, L. praestans, L. Jongheana, Odontoglossum, Krameri, O. naevium, Miltonia vexillaria, M. Phalaenopsis, M. Endresii, and the hybrids in which one of these species is a parent. Many Maxillarias, Masdevallias and even Lycastes thrive remarkably well in cool conditions, especialy those of the M. Chimera section, and others which are unsatisfactory when left in either department the whole year round. Removing them also affords an opportunity of making a thorough inspection for insect and other pests, which, if allowed to spread at this season, will soon do irreparable harm.

General Remarks.—The temperatures of the general Orchid houses from now onwards for the next few months should be raised a few degrees. Cool house Orchids, however, soon suffer from excessive heat, and during hot weather should be kept as cool as possible by the admission of a greater amount of air and increased humidity in the atmosphere. In dry districts this is the only means of maintaining the cool, buoyant atmosphere which these plants need. We have reached the season of the plants' active growth, and every attention should be given them to grow strongly and healthily. Atmospheric moisture may be used abundantly, as no Orchids make satisfactory growth in a dry, parched atmosphere, whilst such conditions bring with them an unlimited increase of insect pests. Unsuitable conditions of atmosphere, either too little or too much humidity, bring their respective troubles, and a proper balance of air, heat and moisture must be maintained to secure the best results.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Removing Spring Bedding Plants.—As the various subjects used for this purpose pass out of flower, have the plants taken up and heeled in in spare ground elsewhere, until time can be found to deal with them, excepting, of course, such as are to be discarded, like Wallflowers and Forget-Me-Nots. Bulbs that are lifted will need sorting, and the best examples ripened after the foliage has died away. Such material as Polyanthuses, Arabis, and Double Daisies needs transplanting and, in some instances, dividing for use next autumn. The empty beds and other spaces may be then treated as deemed best for the summer occupants.

Summer Bedding.—The planting of summer bedding plants may be commenced in most districts, leaving until last any that are not suitably hardened, or that are very tender. These remarks apply to half-hardy annuals, as well as those usually grown in pots. Planting is best done late in the afternoons of hot days, and the plants should receive a copious watering immediately they are set.

Staphylea pinnata.—Though lacking in brilliancy of colouring in blossom, this shrubby tree compares most favourably with any other for profuseness of flowering, every part of its branches being covered with creamy-white flowers bearing a faint suspicion of green on their reverse side. After passing out of bloom this shrub is further interesting by reason of its bladder-like fruits, which are responsible for the names of Bladder Nut, St. Anthony's Nut, and Job's Tears. Specimens in these gardens are probably above the average in height and size, ranging from 12 feet to over 18 feet high, whilst the girth of the biggest main stems is about equal to that of a 54-sized flower-pot Propagation of this shrub by suckers offers a ready method of increase. Staphyleas do best in moist soil.

Early Flowering Shrubs.—As shrubs pass out of bloom any attention in thinning or cutting back the growths should be given, having duly considered the habit and flowering method of the plants to be dealt with. The same work is necessary in the case of semi-climbing shrubs trained against walls. These latter will, in many cases, need some of their growths trained in for extension purposes, and the filling of bare spaces.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Cherries.—Trees that were started early should receive every assistance to develop their fruits by giving the roots liquid manure on frequent occasions and sprinkling a concentrated fertiliser on the surface to be washed down to the roots by watering. Feeding should be continued until the fruits show signs of ripening, when the application of stimulants and syringing the foliage should cease. Over-watering at that stage must be carefully guarded against, otherwise the fruits will crack. When the Cherries are nearly ripe shade them from bright sunshine to prevent injury by scorching.

Strawberries.—During bright weather plants which are stood on shelves near the glass should be examined frequently for watering. Stimulants should be used on frequent occasions up to the time the fruits commence to colour, after which manures are best withheld from the roots. If the pots are stood on a layer of turves with the grass side downward, the need of watering will be lessened. An orchard-house is a very suitable place in which to grow the plants at this season; failing this convenience, pits or frames may be utilised. If red spider is troublesome syringe the plants twice daily until the berries commence to colour, when syringing should be discontinued. The latest batch of plants may be infested with aphides, in which case they should be dipped in an insecticide, or the house vaporised. Vaporising is the more expeditious method when the plants are numerous, and the house or pit suitable. If but few plants are infested, these may, unless rooted into the turf-layer, be taken into a small house or pit for vaporising. An occasional syringing with quassia extract will prevent attacks of this pest. After the later batches of plants have fruited they may be planted on a well-prepared border in a warm, sunny position, and will furnish a second crop in September or early October; or remove all the flower trusses which develop during the ensuing year, and the plants will provide an early crop of fruits next year.

HARDY FRUIT GARDEN.

By A. J. Bartless, Gardener to Major J. F. Harri
King's Walden Bury, Hitchin, Hertfordshire.

Bush Fruits.—From now onward const
attention will be required to obtain good b
fruits. In the case of Red Currants it may
advisable to thin large clusters of fruits, oth
wise the berries will not have sufficient room
swell and should aphis attack the bushes t
will secrete themselves in the clusters,
cover the fruit with black excreta which renc
them useless for any purpose. If large
is desired the Cherry type varieties of C
rants should be thinned also. The bushes
need a stimulant to enable them to perfect th
crops. Continue to stop lateral shoots
previously advised. With the exception
stopping, the above remarks apply also to
Black Currant. All basal shoots should
encouraged to develop, as they will form
fruiting wood of next season.

Apples.—Cold winds and frosts have gi
growers a very anxious time. Apple milc
is bound to appear, and should be dealt w
immediately it is detected. Small, affec
twigs should be removed and burnt.

Peach Leaf-curl.—Owing to the unfavoura
spring it is probable leaf-curl will be found
Peach trees. Badly attacked leaves should
burnt and the trees sprayed with Bordea
mixture, copper ammonia, or some ot
fungicide.

Plums.—Cold, drying winds will also hav
detrimental effect on Plum foliage, and
increasing amount of aphis may be expect
This pest and shot-hole fungus should be co
bated by spraying.

Hoeing and Mulching.—The ground has dr
rapidly, and care must be taken to prev
undue evaporation of soil moisture. Grou
becomes arid and very hard under the influe
of north or east winds, and the drying effe
should be counteracted by continual movem
of the surface soil by hoeing. Recently tra
planted trees should, in all cases, be mulch
and if necessary watered. Every effort m
be made to keep down woolly aphis, and tr
attacked by this pest should be examined f
quently. The weekly spraying of Black C
rants with paraffin emulsion to combat big b
should be continued during this month.

Strawberries.—A final hoeing of the soil
Strawberry plantations should be done pr
to bedding the rows with straw. All lab
should be made secure before this work
undertaken.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Bota
Gardens, Kew.

Euphorbia pulcherrima.—Old stock plants
Poinsettias that have been stored in a partia
dry condition should be introduced to a wa
house, as their propagation should be co
menced next month. Under the influence
heat and moisture the plants will soon sta
into growth, and when the side-shoots a
three to four inches in length they are suitab
for use as cuttings, removing them close
the old stem. These plants bleed freely wh
cut, and it is a good plan to dip the cut en
into finely powdered charcoal. The cuttin
should be inserted singly in small pots, w
watered, and plunged in a warm propagati
case. They should never be allowed to fla
for if this happens they generally prove difficu
to root. Plants are, however, easily propagate
by cutting the old stems into pieces abo
three inches in length and using them
cuttings. In their younger stages the plan
need plenty of fire heat, and should be grov
close to the roof glass. As the season advanc
they should be given cooler and more ai
conditions, continuing such treatment until Se
tember, when they will require a warm
temperature. Successional batches should
propagated according to requirements.

Brunsfelsia (syn. Franciscea).—The Brunsfelsias are generally regarded as, and usually treated as, stove plants; a stove temperature is necessary while the plants are making their growth, but when in flower they will stand for weeks in an ordinary greenhouse. Plants of B. macranthum and B. americana have been flowering freely for some weeks in the conservatory at Kew. The former is the finest and largest flowered of all, and produces its large, deep purple flowers with wonderful profusion on quite small plants. B. americana has attractive yellow, sweet-scented flowers, which gradually turn white with age. All the Brunsfelsias make fine large bushes if they are planted out in a well-drained border in a house where an intermediate temperature can be naintained. B. calycina and B. eximia are old and popular garden plants, and succeed under similar treatment. They are easily propagated by means of cuttings formed of the half-ripened young shoots, plunging the cutting pots in a warm propagating case. Brunsfelsias hrive in a compost of good fibrous loam mixed with leaf-mould or good fibrous peat, and sufficient sand to render the whole open and orous. When the pots are well filled with oots the latter should be given dilute liquid nanure and soot-water. Brunsfelsias are more r less deciduous during the winter, and should hen be kept somewhat dry at the roots.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Endive.—Where this salad plant is desired or early use, sowings may now be made on rich ground in drills drawn one foot apart. As soon s the seedlings have made a couple of rough eaves thin them to one foot apart, and water hem copiously in dry weather. Keep the soil etween the plants well hoed.

Autumn and Winter Greens.—Continue to lant out Cauliflowers and Broccoli as soon as hey become ready. The latter may be put ut between rows of Peas and Beans, but the irst should be planted in good breadths in an pen part of the garden, and the soil hoed frequently to promote healthy growth. A good ed of well-grown Savoys is, in my opinion, one f the most attractive features of the kitchen garden. Dwarf Green Curled and Cartercone re two excellent varieties. The latter, as its ame implies, is cone-shaped, has finely crinkled oliage, and is of very fine flavour. Sow more Broccoli for planting out later; net the seed-bed gainst birds, and do not allow any green egetable to become drawn in the seed bed; ransplant the seedlings when small.

French Beans.—Make a sowing of French Beans to follow those sown previously in pots nd planted in cold frames. Select rich, open round, or a border on the south or west side f the garden, and sow in single rows made feet apart. Plant the seeds with a trowel bout 2 inches deep, and, when the young plants re 2 or 3 inches high, draw a little soil p to them with the hoe, and keep the surface oil well stirred around them as growth proeeds. French Beans growing in frames need rotection at night while danger from frost lasts; ut afterwards the lights may be removed ntirely. Keep the roots well watered and se liquid manure, or some soluble fertiliser casionally. The Beans should be gathered hen they are young, and the plants will connue in bearing until the others are cropping.

Carrots.—Seedling Carrots have made good rogress, and where they were sown in drills ill require thinning to a foot apart. Those wn in holes filled with prepared soil should e thinned to one at each place, as near the entre of the hole as can be determined, leaving e strongest plant if possible. When finished ive the soil a good hoeing to prevent it crackg, first drawing a little fine soil to the plants keep them firm. A mulching with manure om a spent Mushroom-bed will be very benecial to this crop. The material should be aced well around the plants to prevent the ots becoming green at the apex.

THE BULB GARDEN.

HYBRID WATSONIAS.

IT is to be regretted that our Australian kinsmen are so reticent in talking or writing about the progress they are making in the development of many well-known flowers. It is true that we are familiar with the great work done with the Chrysanthemum by that enthusiast, Mr. Thomas W. Pockett, and we know a little about the new Roses being produced by Mr. Alister Clark and others, but in general we are quite ignorant of Australian horticultural activities.

Outdoor gardens are a feature of the homesteads in Australia, and in no country are there finer Botanic gardens. These gardens have always been and still are a tremendous influence for good, and are well patronised by the people. During my recent tour through the length and breadth of the island continent I saw so much of interest that I shall never have sufficient time to tell of it to my friends. A great many exotic plants thrive in a remarkable manner in Australia, including numbers that are natives of South Africa. Among others that delightful genus Watsonia is very much at home.

Some years ago the possibility of producing a Watsonia having pure pink flowers occurred to Mr. J. Cronin, Director of the Botanic Gardens, Melbourne. With this object in view W. Meriana var. O'Brienii and W. rosea were crossed, the former being the mother parent. Numerous seedlings were raised from this cross, several of which had flowers of pleasing shades of pink. One of these with a branching spike and in size of flowers superior to the others was selected. This seedling as the mother parent was carefully crossed with W. aletroides and W. rosea and W. Meriana, and many seedlings raised. In the first generation little variation in colour was apparent, and except where the pollen of W. Meriana was used the flowers were almost uniformly purplish in colour. A few of the best forms of each cross were selected for further trial the following season. These were carefully self-fertilised, and the plants raised from them had flowers of varying colours and of superior quality. The six best forms were selected, and these, by crossing and inter-crossing, have produced a splendid race of Watsonias with flower spikes six feet tall (see Fig. 134), branching at the base, and carrying flowers of lovely shades of pink, salmon, red and crimson. This hybrid race is superior to any of the species. The blooms are produced in great abundance, and are valuable for ordinary decorative purposes and as cut flowers. So far as I know this race of hybrid Watsonias has received no name. It may fittingly be called Watsonia Cronini in honour of its originator. *E. H. Wilson, Arnold Arboretum, Harvard University.*

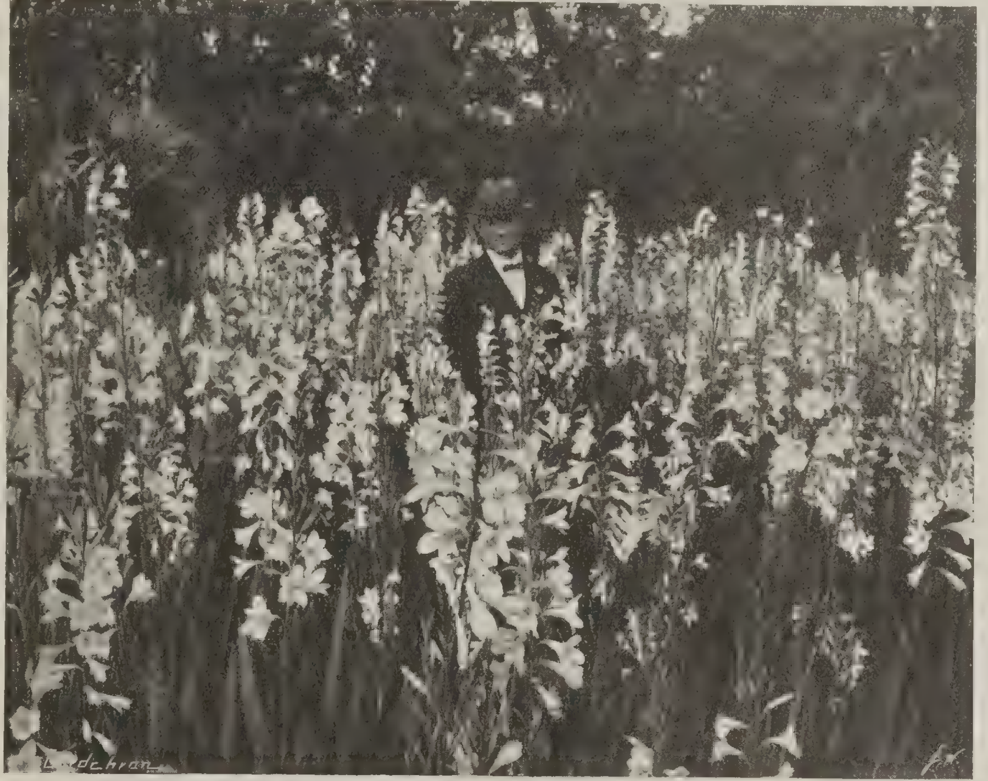

FIG. 134.—NEW HYBRID WATSONIAS IN THE MELBOURNE BOTANIC GARDENS.

THE ALPINE GARDEN.

POTENTILLA RUPESTRIS.

THOUGH rare as a native, this fine Potentilla has won its way by sheer merit into many gardens. As a rock garden plant it is ideal, making itself perfectly at home in any dry, sunny chink containing limestone or old mortar, and in such a situation it will continue growing for years without deterioration or any attention beyond what is needed to ensure tidiness.

P. rupestris makes a short, woody stock, and from this ascends in early spring the handsome leafage in a graceful tuft some 9 in. high. The leaves are slightly hairy, and borne on glossy, straw-coloured stems. No sooner have they attained their full stature than they are surmounted by the flower heads which are carried on stout but elegant peduncles to a height of some 12 inches or more.

The clear white flowers usually open in April or early May. They are, individually, about one inch across and of good form and texture, with no small resemblance to those of Parnassia palustris—Grass of Parnassus. The plant continues in flower for many weeks and may be raised from seed.

A very choice and valuable alpine form of Potentilla rupestris is offered by the trade as P. pygmaea. This is an almost perfect miniature of the type species, differing only in size (it grows but two inches to three inches high) and in its habit of flowering during the late summer. *A. T. J.*

THREE EIGHTEENTH-CENTURY SEED ORDERS.

Among the miscellaneous papers of Edward Gibbon—the father of the historian whose garden is described in the *Gardeners' Chronicle* for April 21—which have been recently acquired for the Library of Magdalen College, are three receipted bills for vegetable seeds ordered for the years 1762, 1764 and 1766. The repetition or increase of the quantity of seed ordered may be taken as an indication of the success or popularity of the produce.

The selection of the varieties of vegetables and flowers grown is of no less interest than the fact that they were grown in a Hampshire garden in the home of the father of our greatest historian, who, as he confessed in his autobiography, "valued the supply of the kitchen much more than the exercise of the field."

The site of the mansion, "which had been converted into the fashion and convenience of a modern house," was at the end of the village of Buriton, near Petersfield, and at the bottom of the hill.

Some painters' bills tell us that there were two hot houses, "ye great hot house," with 12 lights and "ye little hot house," which together cost £1 16s. to paint. There were also a "succession house," "mellon lights" and "lights for ye pine plants in ye mellon ground." We also read of 34 yards of "palasadoes going into ye garden," of 37 yards of "palasadoes round ye bow windows" and of "a paleing by the pond." The rest, all but the vegetable garden, is left to our imagination.

The seed lists for 1762 and 1766 were ordered in February from the same seedsman, William Newman, and are therefore printed below in adjacent columns. The list for 1764 was ordered in October-December from George Eddie. *R. T. Gunther, Magdalen College, Oxford.*

VEGETABLE SEEDS.

February, 1762.			Jan.-Feb., 1766.			Oct.-Dec., 1764.		
1 gall. Challon Peas ..	1	6	2 galls. Early Peas.. ..	3	0	½ Pk. Early Peas	2	0
3 galls. Dwarf Marrow Peas	4	6	4 ,, Dw. Marrow Peas	6	0	3 Pts. Marrow fat Peas ..	7	6
2 galls. Early Beans ..	2	0	2 bush. Broad Beans ..	16	0	1 Qt. Dwarf Beans ..		6
3 galls. Long poded Beans	3	0	4 galls. Long poded Beans .	4	0	1 Pottle Early do. ..		9
2 qts. Windr. Beans ..		6	4 ,, Windr. Beans ..	5	0			
1 gall. Speckd. Dw. Kidney Beans	4	0	1 gall. Large Dw. Kidney Beans ..	4	0			
1 ,, White ,, ,, ,,	4	0						
1 lb. Orange Carrot ..	2	0	1 lb. Carrot	2	0	1 lb. Carrot	2	0
1 lb. Onion Seed	4	0	1 lb. Onion	3	0	1 lb. Onion	4	0
1 lb. Spinach	1	0	1 qt. Spinnish Seed ..	1	0			
4 oz. Parsnep	0	6	6 oz. Parsnep	1	0	6 oz. Parsnep	1	6
1 oz. Itallian Sallery ..	1	0	1 oz. Sallery..	0	6	2 oz. Sellery		4
2 oz. Coss Lettuce ..	3	0	1 oz. Coss Lettuce	1	6	1½ oz. Coss Lettuce Seed ..	3	0
2 oz. Brown Dutch Lettuce	2	0						
2 oz. Red Beat, 2 oz. White do.	1	0	1 oz. White Beat	0	3	2 oz. Beet		6
1 oz. Red Cabbage ..	1	0	2 oz. Early Cabbage ..	2	0	3 oz. Early Cabbage ..	1	6
2 oz. Sugerlofe Cabbage ..	2	0	2 oz. Large Hollow Cabbage	1	0	2 oz. Dutch Hollow Cabbage	1	0
2 oz. Late Battersea do. ..	1	0						
4 oz. Curl'd Savvoy ..	2	0	2 oz. Savvoy	1	0	3 oz. Savoy	1	0
2 oz. White Brocoli ..	3	0	1 oz. Wh. Brocoli.. ..	1	0	2 oz. White & Purple Brocoli	2	0
2 oz. Purple do.	2	0	1 oz. Purple ,, ...		9			
2 oz. Early Colleyflower Seed	8	0	1 oz. Colley flower ..	4	0	2 oz. Colly flower Seed ..	5	0
2 qts. Mustard	2	0	2 qts. White Mustard ..	2	0			
2 qts. Garden Cress ..	2	0	2 pts. Cress	1	0			
2 qts. Radish Seed ..	2	0	1 pt. Radish		6	1 qt. Radish Seed	1	4
2 oz. Curld Endive ..	1	0	1 oz. Endive		6	3 oz. Endive	2	6
1 oz. Parsley	1	0	1 oz. Leek		3			
			1 qt. Shallots	1	0			
1 oz. Long prickley Cucumber	1	0	Cucumber	0	6			
1 oz. Short do. do.	1	0						
½ oz. Cantelope mellon ..	2	6				6 Pine Suckers	6	0
½ oz. Romanna do. ..	2	0				2 bushell of Mushroom Span	5	0

FLOWER SEEDS AND FRUIT TREES.

1 oz. Minonett	5	0	42 Standard Apples @ 8d.	1	8	0	20 Parsells of Best flower seeds	10	0
Sweet Peas	1	6	4 ,, Cherrys		4	0	21 of the Common sorts ..	5	3
			4 Dwarf Apples		2	0	25 Roots of Common Hyacenthus	2	0

GARDEN NOTES FROM S.W. SCOTLAND.

Anxiety and hope. despair and (sometimes) fruition chequer the lot of him who aspires to cultivate early-flowering species of Rhododendron in our exasperating climate. The bygone winter and the first moiety of spring were all that could be desired for this class of plants, forasmuch as, except a sharp nip in the early hours of March 24—no more than sufficed to tarnish the bloom of such bushes of Rhododendron ciliatum as were growing in exposed places—there had been a complete absence of frost between Christmas and the closing days of April. All through February and March we enjoyed a surfeit of blossom, beginning with R. moupinense, followed by R. haematocheilon, R. haematodes, R. oreodoxa, R. barbatum, R. campylocarpum, R. Thomsonii and its hybrids, etc.; and although the young growth on some species was perilously forward, we drugged ourselves into the belief that all danger was past, and that at last we were to be blessed with an ideal Rhododendron season.

We had read about 15° of frost at Kew, and spoke boastfully about the cloudy clemency of our West Coast climate. Experience ought to have warned us about its treachery.

During the night of April 25-26 the clouds cleared away, and in the morning the mercury was found to have registered 25°, or 7° of frost. Nearly all blossom was destroyed. We had had our fill of that; but the doleful fact had to be faced that much young growth had been blackened and destroyed, except on plants growing in a north exposure. Among those that suffered most were R. decorum, R. Griffithianum, R. kewense, R. Fortunei, R. pachytrichum, R. oreodoxa, and R. haematocheilon. Species that start late into growth were none the worse, such as R. arboreum, R. barbatum, R. calophytum, R. Soulei, R. sutchuenense, R. Thomsonii, R. Edgworthii, R. Scottianum, R. crassum, etc. Also, R. Augustinii and R. Schlippenbachii came through the ordeal with flying colours.

Of other shrubs that happened to be in bloom at the time of the frost, it may be noted that Exochorda grandiflora, Spiraea arguta, Prostanthera rotundifolia (on a wall), Clianthus puniceus (also on a wall), Piptanthus nepalensis, Olearia nitida, O. stellulata. and Calceolaria violacea never turned a hai The only herbs that suffered destruction o flowers were Saxifraga (Megasea) Delava and S. Beesiana, both handsome things. Stracheyi we have written off as unable t bear the slightest ground frost.

The loveliest herb in bloom just now (Ma 10) in the open is Bailey's variety of Meconop sis simplicifolia. It bears only a single flowe on each stiff stem, 18 inches high, but tha flower measures well-nigh 5 inches across (b the tape). The petals, silky in texture an fine Cambridge blue in colour, surround cushion of golden anthers, from among whic rises a long pistil of pale buff hue. This ex quisite plant can only be classed as a biennial but is easily raised from seed, which it bears i abundance, and is perfectly hardy.

On the sea-coast the turf covering stretche of the 25 feet raised beach is sheeted wit drifts of Saxifraga granulata, flowering simu taneously with plants of that species in th garden. On the other hand, Scilla verna growing constantly in company with the Sax frage, is not yet in flower on the coast, bu has passed out of flower in the garden, wher it began to bloom on March 24. This ha nothing to do with the character of th season; it happens every year that the verna Squill flowers six weeks earlier in the borde than it does along the shore, and grows t four times the stature.

Talking of stature brings to mind the multi tude of dwarf Rhododendrons, which on th Chinese uplands take the place of Heathe Most of those I have seen in flower, regarde as garden plants, do not appeal to me, thoug they are of much botanical interest. But ther is one species well worthy of a good place i rockwork where it may not be overgrown b grosser things—namely, R. calostrotum. A the specific name signifies "beautiful carpet, we may assume that it clothes the mountai sides as Heather does our Highland hills. Th plant seems never to exceed 6 inches in heigh but it bears flowers of a clear rose, with dar spots at the back of the corolla, which is a large as that of a Marsh Marigold. In th splendid display of Rhododendrons at Tru on May 1 (undoubtedly the most comprehensiv exhibition of the genus that has ever bee made) I noticed a small spray of this specie in Mr. Magor's exhibit; but it had suffere in transit and could not do itself justic This little Rhododendron makes a charmin pot plant. *Herbert Maxwell, Monreith.*

NOTES FROM A WELSH GARDEN.

Even in a garden where Brooms are extensively grown the peculiar beauty of Cytisus Moonlight (pallidus) cannot fail to attract attention. That this is one of the most distinctive and beautiful of the Scoparius class must be generally admitted, and it is notable not only for the large size and soft ivory hue (almost approaching nankeen) of its flowers, but also for the rich green of its sturdy growths. Another Broom of this section which arrests one's attention at this season is the late-flowering form of the common C. scoparius, which i conspicuous not, of course, for its blooms, but for the entire absence of them. Whilst all of the type species, and most of the varieties are laden with their abundant blossoms, these late Brooms are as green as they were in January. Nor will they open a flower in a normal season until midsummer.

Faithful to its reputation that fine old Rose, Paul's Carmine Pillar, was the earliest to show colour this spring, several of the large and single blossoms being open in May's first week. But R. Hugonis was only a few days behind, and this elegant species was wreathed with its delightful blossoms until the first of the Penzance Briars was a-bloom. Among the newer single varieties Glow-worm is, perhaps, the most gorgeous in colour, and one that promises to be very content with our light, warm soil. possibly owing to the Austrian Briar parentage, which its warm colouring suggests. Nor can one pass without notice R. indica, var. Miss Lowe, which is always among the forerunners of the Rose season, and one that will, in efiance of the usual habit with such singles, ontinue to flower on and off the season through.

Though it does not often bloom with us, orokea Cotoneaster has lately borne a number f bright, little, golden stars among its tangle f wiry branches and rather dull foliage. ipelta floribunda is another somewhat uncerain blossomer here, but its clear, rosy-white, ubular flowers, with their conspicuous orange hroats are worth some patience. The Cotoneasters are not, as a race, notable for their eauty of blossom, but C. hupehensis is an xception. The fresh green sprays of this shrub re now bearing at almost every leaf axil a gay ittle bunch of pure white flowers, held erect on he upper side of the arching branches.

Among the plants which have gone ahead ith the most hearty vigour in a new piece of etaining wall the Armerias are very noticeable ust now. The largest and tallest, as well as he smallest, have done surprisingly well beween the stones. This would, perhaps, not eem so remarkable to those who are familiar nly with the Sea Thrifts which cling to the hinks of sun-baked cliffs; but plants gathered rom the tide-washed mud flats seem no less menable to dry wall culture.

Campanula raddeana is doing wonderfully ell under similar conditions, as are also everal of the Erysimums; the fine E. linilia, though it grows into quite a bush on the at, adapts itself to wall culture in a most deghtful manner by spreading over the stones ith a dwarfed, clinging habit. It will also eed itself in the chinks, but not so freely as me others of its tribe. Though it is accorded ant notice by some of the authorities, another all plant, Achillea Huteri, must rank high mong subjects of its class, if only for the delite beauty of its foliage and the purity of its hiteness when in bloom. Few white flowers the wall, however, at this season can equal rinus alpinus albus, whose little blooms are so ean and sharp that they stand out in telling ntrast among others, but they never look rettier than when an odd plant appears lf-sown, in a colony of E. a. carmineus.

In like manner a tuft of the almost white amondia pyrenaica, among a small gathering of e violet-blue type, affords a pleasing note in e general effect. Douglasia laevigata, which ways disliked our wet winters in other sites, is w enjoying life in the dry wall, and opening s cool, pinky-lavender, yellow-eyed blooms, d as much may also be said of Scabiosa tercephala. Two Alyssums established on arm ledges, which they adorn with their very lvery foliage and flowers of a soft yellow, re A. idaeum and A. moellendorfianum, the tter with a likeness to A. montanum.

Invariably the first of the Pinks to give colour ere is Dianthus arvernensis, an alpine form of r own Cheddar Pink (D. caesius), and it is kewise one of the best of its class if freedom f flowering, robustness and compactness of abit are any recommendation. This pretty lant will make large mats on the wall, the ck-garden ledge, or along the margin of the th. It takes care of itself, and seems immune om that fell disease to which so many of its nd appear to be subject. *A. T. Johnson, alycafn, N. Wales.*

TREES AND SHRUBS.

TWO HANDSOME GREVILLEAS.

GREVILLEA ROSMARINIFOLIA is a charming ergreen shrub which delights in a dry, nny position. It is very floriferous, remains full beauty from early spring till late sumer, and carries a few of its quaint, red wers almost throughout the year. It is of w growth, and forms a bush five to six feet gh in about 15 years.

G. sulphurea has bright yellow flowers, and very showy. It grows much more rapidly an G. rosmarinifolia, and with the protecn of a south or south-west wall, quickly aches a height of 10-12 ft. If its long, nder growths are allowed to hang loosely m the main stems, a most beautiful effect produced over a very long period. *W. ton, Pyrford Court Gardens, Surrey.*

SOLANUM CAPSICASTRUM IN THE OPEN.

THE sprays of Solanum capsicastrum I send you (see Fig. 135) were cut from a plant growing out-of-doors on a wall facing due north, which is, however, more or less protected by a range of Melon houses. It is seven years since the plant was turned out from a 5-inch pot. The second year after planting it was cut down by 19° of frost, but started into vigorous growth again in the following spring, and has since withstood 16° of frost, and without any further protection than a piece of fish net, which is used with the object of protecting the berries from the ravages of the birds. The plant is 4 ft. 9 in. high and 4 ft. wide.

It is a consistent bearer, and is always a great source of interest to visitors. We have some smaller plants in various positions, and an old wayside cottage in the neighbourhood also boasts of two plants of a similar age to the subject of these notes, which never fail to bear a fine crop of berries every season. *W. H. Honess, Walhampton Gardens, Lymington.*

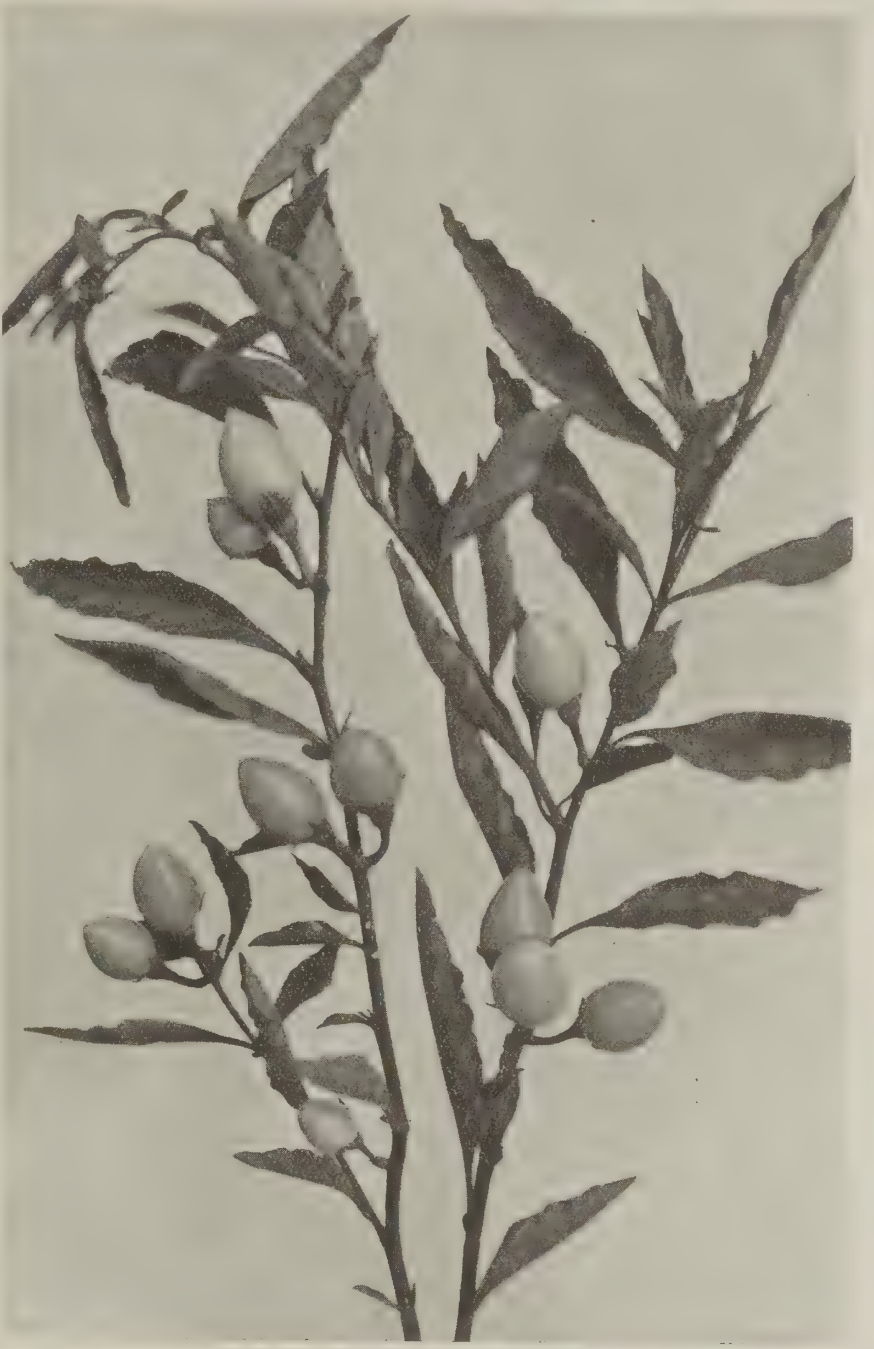

FIG. 135.—FRUITING BRANCHES OF SOLANUM CAPSICASTRUM FROM A PLANT GROWING IN THE OPEN IN HAMPSHIRE.

SOLLYA HETEROPHYLLA.

THIS is a charming little twining shrub from Australia, which is hardy enough for training up a wall or trellis in any but the coldest districts. Even in some bleak districts it has succeeded for years in light soil, with the help of winter protection, such as dry Fern, over the roots, for if the latter are kept alive the plant will, on being cut back, shoot up in spring with the vigour of a hardy Fuchsia.

S. heterophylla sends up a sheaf of thin, wiry branches, clothed with leathery, Myrtle-like leaves, and from the axils of these the flowers appear. These are of the daintiest appearance, standing out on hairlike stems terminating in the drooping, Gentian-blue, bell-shaped blossom.

Plants that are not cut back will begin flowering in May and continue in bloom until the end of the autumn. If preferred, S. heterophylla may be grown in a large pot, plunged in the ground during summer and taken indoors in November. This treatment will obviate any danger of losing the plants in a hard winter. *A. T. J.*

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Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

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FORESTRY COMMISSIONERS' REPORT.*

THE Forestry Commissioners were appointed in November, 1919, and have just issued their third annual report. I may recall to readers that the Forestry Commission was established to carry out, as its main work, a definite programme of State Afforestation. This programme, sanctioned by the Forestry Act of 1919, involved the planting of 150,000 acres of new land during the ensuing ten years, the cost to come out of the Forestry Fund, a sum of £3,500,000 voted by Parliament and directed to be issued during the decade in ten annual instalments. The Forestry Commissioners set to work immediately, organised a staff, drew up their planting plans, and proceeded to acquire land suitable for afforestation both by purchase and by lease; but in the short period that has elapsed, extraordinary vicissitudes have occurred, due to the unfavourable financial position with which the Government was and still is confronted. The activities of the Forestry Commission were threatened with complete extinction by the Geddes Committee, who recommended that the scheme of afforestation should be discontinued and that the unexpended balance of the Forestry Fund, £2,800,000, should be cancelled. These drastic recommendations were rejected by the Cabinet, who, however, decided that the Forestry Commission should work on a reduced scale for the next two years, 1921-1922 and 1922-1923, with a saving each year of £200,000. Accordingly the Forestry Commission reduced its staff, ceased temporarily to acquire land, and made arrangements to diminish considerably the acreage to be planted annually.

The report of the Geddes Committee on State afforestation is characterised as superficial and full of misapprehensions; at any rate it was lacking in vision of the future. The policy of reduction has worked out in a grotesque way. The question of relief of unemployment arose; and while the Forestry Commissioners were asked on one side to reduce their planting programme on the score of economy, they were being pressed on the other side to provide as much work as possible for the unemployed. As a result the reduced expenditure for 1921-1922 out of the Forestry Fund was £244,414; but the Forestry Commissioners expended out of the Unemployment Fund £154,017, so that the total sum spent on afforestation was £398,431, considerably in excess of the normal programme. The same thing has happened again in the present year. The Forestry Commission thus receives money for the relief of unemployment, which enables work to be done on an enlarged instead of on a reduced scale.

The usefulness of forestry for relief work is abundantly shown in this Report. Of the £154,017 expended out of the Vote for the Relief of Unemployment, about two-thirds went to various forestry operations in lands owned by the Commissioners and in the Crown Woods of Dean Forest and Tintern, where unemployment was very acute. About £50,000 was spent on 501 schemes, in the form of grants to private owners and to corporations, in aid of planting trees, preparation of the ground for planting, and clearing scrub, on the condition that the labour engaged should be "unemployed." The grants vary from £2 to £3 per acre for private owners. There has been little complaint as to the quality of the labour, which was almost completely country-bred. It is believed that the work accomplished is of a productive character, and that the proportion of the Government grant actually expended in wages is higher than in any other form of relief work. The grant system is very efficient from the employment point of view, as the grant per acre is rarely sufficient to cover the cost of labour alone, and landowners have to draw on their private means. In some cases £100 advanced in grants has entailed a total expenditure on labour of £250.

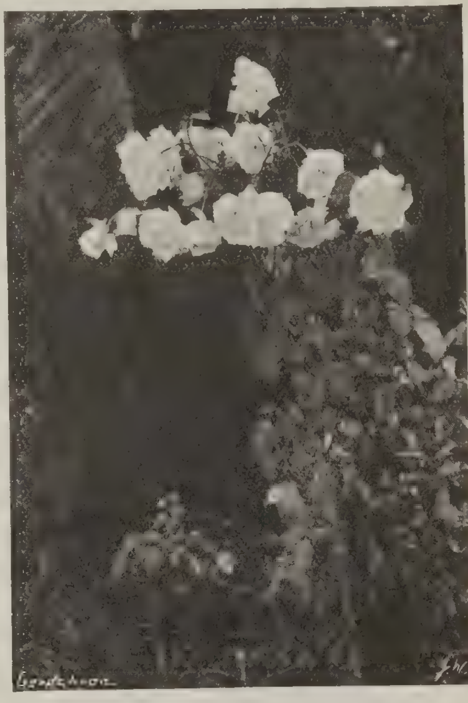

FIG. 136.—LA FRANCE ROSE GROWING IN CENTRAL AFRICA.

The Report shows that the new land acquired for afforestation during 1921-1922 amounted to 23,937 acres. The Commissioners now possess 92,426 acres of plantable land, of which 69,540 acres were obtained by lease and 22,886 acres by purchase. The area planted by the Commissioners in the year was 10,693 acres; and in addition to this 10,192 acres were planted by private owners and corporations by means of grants. The total area planted, about 20,000 acres, may be regarded as highly satisfactory. The Commissioners have ceased forestry operations in Ireland; and the financial and other arrangements caused by the change of government will be detailed in the next annual report.

There are numerous tables of statistics of the areas and species in the various plantations, of nurseries, of expenditure, etc., and a sketch map showing the Crown Woods and Forestry Commission Areas in Great Britain and Forestry Centres in Ireland. It may be noted here that a Bill had just been read a second time in the Imperial Parliament, transferring *en bloc* to the Forestry Commission the woods and forests which still remain under the management of the Commissioner of Woods. There is evidently going to be no reduction in the activities of the Forestry Commission.

There are now three Apprentices' Schools, at Parkend (Forest of Dean), Chopwell (Co. Durham), and Beauly (Inverness-shire), in which sixty-two men received training during the year. The expenditure on these schools amounted to £10,160 in the year. The School at Burley (New Forest) was closed in 1921. Grants in aid of higher forestry education, in all amounting to £2,206, were given to Oxford, Cambridge, Bangor, Armstrong College, and the Agricultural Colleges at Aberdeen and Glasgow.

On Research and Experiment, the expenditure was £6,126. Experimental plots of various species are 120 in number. Experiments have been carried out in the harvesting and storage of tree seeds, and on methods of sowing and protection against frost and drought. Investigations are being carried out in regard to Chermes, Phomopsis Douglasii, tree-growth on peat areas, Larch hybridisation, etc. Considerable progress has been made in the important work of making a census of woodlands. During the year some 509 parishes out of 816 parishes in Scotland, which contain woodland, have been investigated. Two counties in England, *viz.*, Hertford and Suffolk, have been completed, and two counties are being investigated in Wales, but are not yet completed.

In conclusion I may state that this Report contains much matter of interest to landowners, foresters and economists. *A. Henry.*

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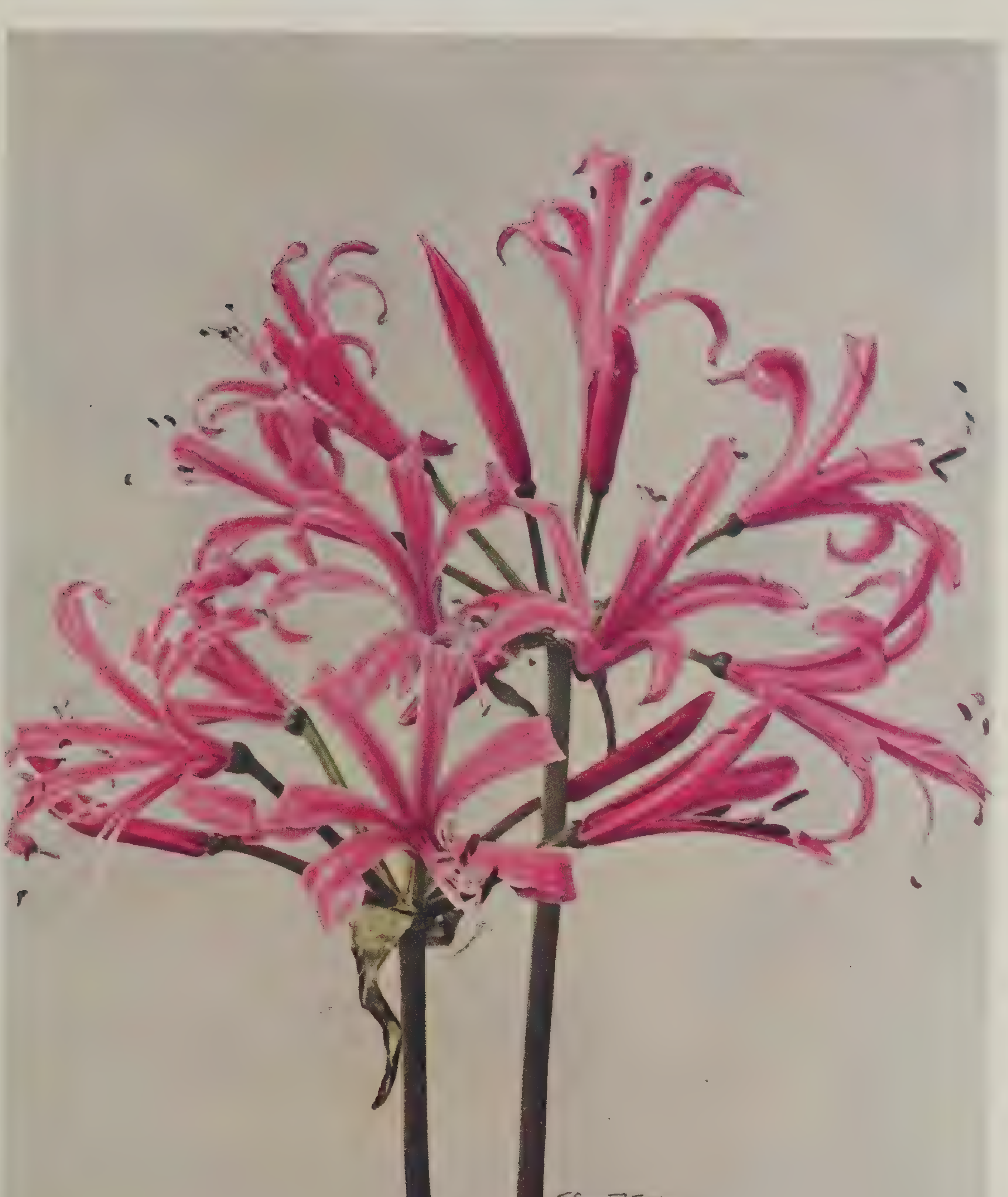
* *Third Annual Report of the Forestry Commissioners,* year ending September 30, 1922. H.M. Stationery Office, 1923. Price one shilling net.

GARDENING IN CENTRAL AFRICA.

ANYONE accustomed to gardening in England finds particular interest in practising the art in tropical Africa. Conditions are reversed, for the tender stove plants which tax the gardeners' skill at home are there the easiest to grow, whereas it is the hardy, common plants of English gardens which become of the greatest importance, and demand the greatest care. There are, however, some exceptions to the rule, and as these exceptions are so varied, and often entirely inexplicable, it is quite impossible to say what plant will or will not succeed in tropical Africa until it has been tried.

Houses in the towns are always built well apart from each other, allowing each a good piece of garden ground; but gardening has not reached a very high state of excellence. Occasionally, however, one does find an enthusiast, and it will be found that his greatest pride is not in his Crotons, or flaming tropical plants, but in a limited measure of success with the commoner of our garden plants.

The tropical plants met with in every garden, even the most slovenly kept (for plants are to be had from the Botanical Department for the asking), are Crotons, Acalyphas, Panax, Eranthemum, Hibiscus, Poinciana, Sanchezia and Frangipani. Bougainvillea and Solanum Wendlandii climb on to the roof of the bungalows. The latter plant I wrote to the late Sir T. Hanbury, Ventimiglia, for, in 1905. It came as a rooted cutting, by post, grew amazingly, and now its wealth of blue flowers is a feature of the civilised settlements of this part of Africa. The red-leaved Alternanthera has spread itself into every native garden. The native, with his usual sense of utility, uses it in a curious way. All but the main roads are kept up by natives, each householder being responsible for a section. The sections are defined by a few plants of Alternanthera, planted at the side. Apparently this plant has entirely superseded Dracaena fragrans, formerly used for this purpose. Of the wisdom of the change there is no doubt. Alternanthera is much more readily established, and should necessity demand that it grow in a swampy place, then a few handfuls of soil raised above the mud are sufficient for it. Another roadside plant which seems to have spread throughout the length of the country is the common Zinnia. It has deteriorated to a flower with a single circle of ray florets of dirty-pink colour, but it


T. Ernest Waltham.

NERINE BOWDENII.

THE LIBRARY
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UNIVERSITY OF ILLINOIS

·ds and grows in thousands. Like the Alter-
nthera, it will not naturalise, and is only
ınd by the sides of the roads. It is often
ociated with Tomato plants, great, big, strag-
ng clumps with hundreds of tiny fruits.

Regarding our common English garden flowers,
d I been asked, before I had experience to the
ıtrary, which flower, the Rose or the Sweet
a, would be likely to do best, I would have
imped for the Sweet Pea, particularly as the
inary Pea does so well. Yet, the fact is,
body has ever succeeded in getting a single
wer of the Sweet Pea, whilst the Rose may
said to be the most successful introduction.

a Roses and hybrid Teas (Fig. 136) are an
qualified success, particularly on stony soil.
idently they like the excellent drainage they
, for on moist spots, where one grows vege-
bles, they do not thrive. They are all grown
m cuttings, and it is best to raise fresh
shes every few years. In a recent note from
anda, I saw it stated that Rambler Roses
not flower. This is not quite correct. They
wer, but do not ramble. I had Dorothy
rkins which used to send up strong shoots
4 ft. in height, when they terminated in a
head of flower. As each went out of bloom
was cut down and another growth resulted.
e plant was well worth growing, as it was
ways in flower, and made a handsome bush.

Roses in Uganda are scentless. Another
cess is the sweet, blue Violet. Given a
thern aspect, this plant flowers very well, and
elops its lovely fragrance. I have seen
ives attracted by the scent of this flower, and
s is indeed a tribute to the homely Violet.

All herbaceous flowers which are unable to
er their habits and do without a rest are an
er failure. I had no success with the Cam-
nula family, whilst Delphiniums, Hollyhocks
d Michaelmas Daisies all failed. Gypsophila
niculata grew weakly as an annual, but is not
success. Chrysanthemums grow and flower
akly at about 6 inches high, although I have
n some fairly good plants grown on a cool
randah. Perennial Phloxes refused to thrive.
via splendens does very well, becoming almost
shrub; S. coccinea is also happy. Dahlias
w well from seed, and I had some very suc-
sful beds by cutting down the plants after
wering, and moving them into fresh soil.

Bulbs, such as Tulips, Narcissi, Hyacinths
d Irises fail to grow after perfecting the
ver that is in them when imported. I have,
wever, grown some very fine Amaryllis.
parently resting is not essential to these
nts. A large bed of a strong, flowering
ncratium was continually in flower and a
k Zephyranthes from the Cape did well.

Amongst annuals, there is a wide choice of
ved successes, although, as in the case of the
eet Pea, one never knows what is going to
pen. The common Pansy I found quite diffi-
to manage. Cosmos, Calliopsis, Phloxes and
iflowers were great successes. Love-lies-
eding, in a deteriorated form, springs up
rywhere, and in common with other Amaran-
eous plants, the tips are eaten as Spinach by
natives. Datura Stramonium is a success
rywhere. Gerbera hybrids I have seen grow-
very well. Cannas are exceptionally fine, and
ead rapidly. Both French and African Mari-
ds succeed well, as do Nasturtiums. Stocks,
ers and Columbines I found impossible, as
were Poppies. Petunias are a moderate
ess.

Useful climbers are Aristolochia elegans,
urandya Barclayana and Clerodendron
fouri. These are more suited for verandah
erings than Bougainvillea. I once planted the
er beside a bungalow; its removal became
essary five years later, and was a problem.
ut it off at ground level, as it had rooted
the masonry, yet it threw out strong shoots
such a rate that the verandah had to be de-
ished in order to grub it up. Its shoots grew
ween the corrugated iron sheets of the roof
lifted them off; moreover, I found it a har-
r for snakes. A fine Bougainvillea San-
ana, grown as a bush in the Botanic Gar-
s, Entebbe, was 30 feet high, and as big as
use when I saw it last.

lanum Wendlandii is a persistent plant when
ly established, though not satisfactory on a
, as its shoots get into crevices and cause
damage. To grub it up is not easy. I remember grubbing a large plant growing against a building, and on returning from a six months' absence I found the roof as thickly covered by the Solanum as before I grubbed it. Evidently roots send out growths.

Trees have been experimented with to a very limited extent. Cupressus macrocarpa grows quickly, but less rapidly than the Nyassaland Conifer, Widdringtonia Whytei. The latter makes timber quickly in Uganda. Many Australian trees, such as Eucalyptus and Acacia, have been planted, but this type of tree seems particularly susceptible to attacks from white ants.

Our British fruits are absolute failures. Most gardens possess a few Strawberry plants, but I have never seen a good-sized fruit, nor tasted one worth eating. I have heard of an odd Apple being produced, but the trees, as in the case of the Pear and Plum, grow weaker and weaker until they die. One would have expected the Fig to flourish, as tropical Africa is the home of the genus Ficus, but I found it difficult to grow; in fact, a plant I looked after for four years was smaller at the end of that time than at the beginning. The Mulberry acts curiously. Cuttings root easily, and form fruiting bushes in two years. At five years of age they are eaten off by white ants. The fruits are small, abundantly produced, and useful for tarts and jam. There are, of course, all the tropical fruits in abundance, with little trouble in growing them.

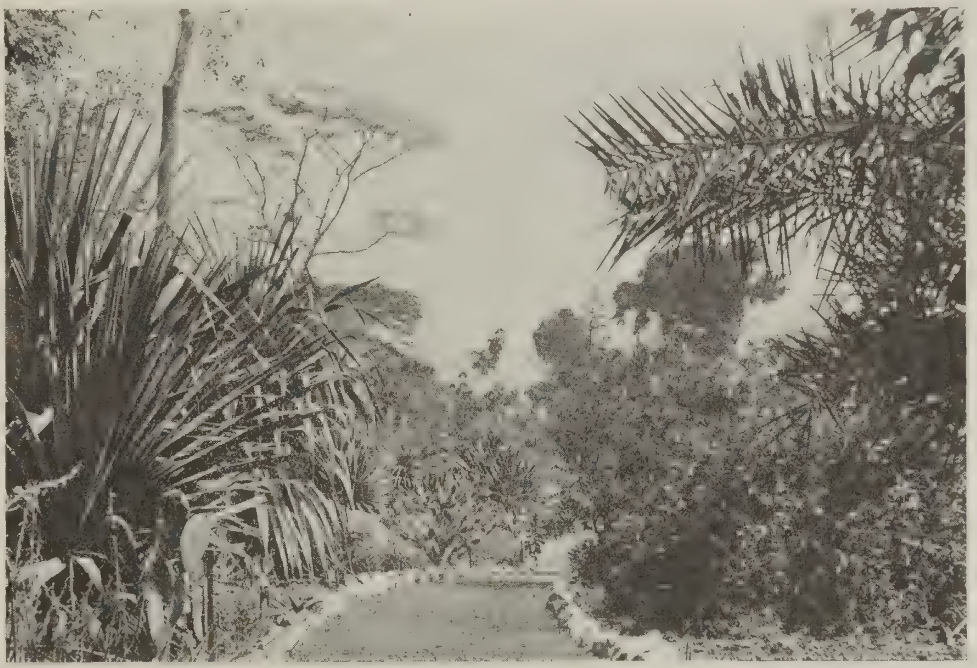

FIG. 137.—VIEW IN THE ENTEBBE BOTANIC GARDENS.

Vegetable growing, speaking generally, is not easy. Many kinds will grow, but constant attention must be given them. They need a moist situation, and as, for health reasons, houses are built on high ground, the garden is usually unsuitable for vegetables. Successful crops are obtained from Potatos, Dwarf Beans, Peas, Cabbages, Carrots, Tomatos and Lettuce. Failures are Runner Beans, Turnips, Broad Beans, and Parsnips. The Runners and Broad Beans grow well and flower, but fertilisation, apparently, does not take place. Potatos are usually small, but this is doubtless due to lack of change of seed. Cabbages are frequently increased by cuttings; the shoots appearing after a head is cut are planted and shaded by a leaf. They quickly root and turn in, and I found they made as good heads as seedlings. Shallots are very successful; but I have never known anyone grow Onions from seed.

An unexpected failure was with Melons, Cucumbers and Vegetable Marrows. The plants grow, but no fruits were perfected. I found a small worm always present in the tiny fruit. This is curious as Uganda is the home of many Cucurbitaceae. Native Marrows and Pumpkins grow like weeds, the Luffa hangs from every hut, and Momordica Charantia is rampant enough to stifle out a Coffee plantation in a short time. Yet the useful plants of the order seem unable to fruit. I tried the South African Water Melon, but met with no success.

Occasionally one has an unexpected success with a crop. I remember once taking out from home seeds of Cauliflower, Savoy and Cabbage. I had three hundred plants of each put out, and never saw crops in England to beat them; but I never had another success nearly approaching that. One year I had some very fair Brussels Sprouts, but every other attempt with this vegetable was an utter failure. Once only did I get fair Celery.

In 1908 I sent to England for some Watercress seed. It was sown beside a running stream, and in a few months was to be found in fine patches down the stream for half a mile. After that date I was never without Watercress, and such Cress! Two heads would make a good penny bunch!

A note on gardening in Uganda would be incomplete without reference to lawns. Our sports ground was a grass one, and the golf greens were as perfect as any in this country. The grass grown is Cynadon dactylon, seeds of which were imported. The method generally adopted in making a lawn is to level the ground and dibble in runners of this grass, a few inches apart. In a few weeks the ground is covered. Another method, equally successful, is to chop up the runners into chaff, mix them with cowdung, clay and water into a paste, and plaster this over the ground about half an inch thick. The grass springs up as thickly as if seeds had been sown. A native grass, which greatly resembles the Cynadon, makes an equally good lawn, and was used to make the lawns in the Botanic Gardens at Entebbe, a view in which is illustrated in Fig. 137. *E. Brown, F.L.S.*

A New Climbing Rose.—*Plant Immigrants*, No 201, January, 1923, gives a very fine illustration of a climbing Rose, Belle Portugaise, or, as it is sometimes called, Belle of Portugal. The *Bulletin* states that this is one of the most valuable contributions of recent years to the list of hybrid climbing Roses grown in America. It was received by the American United States Department of Agriculture from the Botanic Garden of Lisbon, Portugal, in 1911, and is stated to be a hybrid, one of the parents being Rosa odorata gigantea. The colour is soft pink tinged with salmon; the buds are sometimes 4 inches long, whilst the fully expanded bloom measures 7 inches across.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM CAMDEN, LOW'S VARIETY.

MESSRS. STUART LOW AND Co., Jarvisbrook, Sussex, send the first flower of a cross between O. Lambardeanum (coeruleum × Vuylstekeae) and O. Regale (ardentissimum × Lawrenceanum), in which the chocolate purple markings on a yellow ground acquired from the O. triumphans in O. Lawrenceanum are displayed in a very remarkable manner. The sepals are chocolate-purple with oblong yellow blotches and yellow margin. The petals are similarly coloured, but the middle of each has a pair of window-like yellow blotches with purplish centres. The lip is white with many chocolate-purple markings, and the outside of the column is dark chocolate-purple. A similar arrangement of opaque blotches is found in the interesting O. Ithone var. Papillon of E. R. Ashton, Esq., the parentage of which is given as Aglaon × Dusky Monarch, the sequence being strengthened by the fact that the O. Lambardeanum is from coeruleum × Vuylstekeae (*Gard. Chron.*, Jan. 15, 1922, p. 20). Great interest attaches to the close observance of hybrid records, as certain parents are generally disclosed which consistently give singular characters when suitably crossed.

LAELIO-CATTLEYA EMILY METHUEN.

A FLOWER of this good, bright, yellow Laelio-Cattleya with cherry-red blotch on the lip is sent by Frederick J. Hanbury, Esq., F.L.S., Brockhurst, East Grinstead (gr. Mr. Matthews), where it is flowering for the first time. It results from crossing L.-C. Apello (C. Schröderae × L.-C. Warnhamensis) and L.-C. Baldockiana (C. Gaskelliana × L. cinnabarina). Laelia cinnabarina × C. Trianae produced L.-C. Warnhamensis, and thus it takes part in both parents and is the factor which sets the yellow colour, but doubtless the pronounced yellow in the lip of all the Cattleya parents assists. The size and form of the flower is nearest to C. Schröderae and the colour on the front of the lip is a feature derived from C. Trianae. The hybrid is named after Lady Methuen, wife of Sir Algernon Methuen.

CYMBIDIUM INSIGNE BIERI.

A LARGE and beautifully marked flower of this favourite Cymbidium, which is a general favourite and has been the founder of one of the most decorative and varied of any class of Orchids, is sent by Mr. F. C. Puddle, gardener to Lady Aberconway and the Hon. Henry D. McLaren, Bodnant, North Wales. In point of beauty, size and form, it surpasses many of the hybrids which might be compared with it. The sepals and petals, which are of firm substance, are white with a slight blush tint, the broad lip with openly displayed side lobes having closely arranged claret-purple lines, the front lobe being densely spotted with the same colour. The two plants of it were purchased by Mr. McLaren at the Ghent show (see p. 218).

VEGETABLE GARDEN.

MANURIAL EXPERIMENTS AT DROITWICH.

TRIALS of Onion, Beet, Parsnip, Runner Bean, Broad Bean, and Pea were conducted under the same manurial conditions at Droitwich as the Potatos (see page 262). The records vary from 15 to 18 years; therefore they ought to possess some reliability with regard to their respective average rates of weight per acre.

The variety of each kind of vegetable grown each year was the same, and from the same source of supply. They were :—

KIND.	VARIETY.
Onion	Rousham Park Hero
Beet	Pragnell's Exhibition
Parsnip	Hollow-crowned
Pea	William Hurst
Runner Bean	Neale's Ne Plus Ultra
Broad Bean	Bunyard's Exhibition Longpod.

AVERAGE CROPS PER ACRE OVER A SERIES OF YEARS.

	Stable Manure and Inorganic Fertilisers,				Stable Manure only.			
	tons.	cwts,	lbs.	Years.	tons,	cwts.	lbs.	Years
Onion...	14	7	10	(16)	14	7	11	(18)
Beet ...	29	9	47	(18)	23	17	91	(18)
Parsnip	17	15	37	(18)	19	12	67	(18)
	b'hls.	lbs.	Years		b'hls,	lbs.	Years	
Pea	188	20	(16)		178	8	(17)	
Runner Bean	274	2	(18)		251	17	(18)	
Broad Bean	289	10	(18)		306	14	(18)	

	Garden Rubbish only.				Inorganic Fertili-er only.			
	tons.	cwts.	lbs.	Years	tons.	cwts.	lbs.	Years
Onion ...	15	16	48	(18)	4	10	99	(18)
Beet ...	26	14	93	(16)	24	15	72	(18)
Parsnip	16	13	31	(16)	8	8	22	(18)
	b'hls.	lbs.	Years		b'hls.	lbs.	Years	
Pea ...	195	15	(16)		130	9	(15)	
Runner Bean	274	2	(16)		146	35	(18)	
Broad Bean	274	5	(16)		212	17	(18	

Peas and Beans were gathered and weighed in their pods as they became fit for the table.

Onions were pulled, cleared of soil, their roots trimmed, and the bulbs left to dry on the ground, then bagged in hundredweight bags and sent to the wholesale market.

Beets were pulled, trimmed, cleaned and placed in heaps on level ground (having been weighed as they were trimmed and cleaned), the heaps being long or round according to the space available. The roots were then covered with dry haulm of Peas and Beans, and any spare litter, the whole being covered in with a layer of soil about six inches in depth.

Parsnips were treated similarly to Beet in almost all respects, the chief difference being in the greater care exercised to avoid "bleeding" from the Beet; and the deliberate removal of the rat-like caudal extremity of the Parsnips, when weighing and bagging them for market.

These records—including the records of Apples, Pears and Plums—demonstrate the high value of garden rubbish in its various forms as a source of plant food. They also throw some light on the value of certain inorganic fertilisers when used *alone* over many years.

At this point it should be clearly stated that no vegetable debris of any kind was applied to, or allowed to remain upon, the plot devoted to inorganic fertiliser experiments. All weeds, leaves, prunings and rubbish of any other kind were removed and taken to the respective heaps to decay or to be burnt.

A small and short series of experiments was commenced in 1900 on four very small plots, each plot being treated with one of four kinds of inorganic fertilisers, viz., kainit, mineral superphosphate, nitrate of soda, and sulphate of ammonia. The cost per acre of each fertiliser was the governing factor, rather than the food value, at that time. This, admittedly, was not the wisest course or the best way to ensure good crops. The fertilisers were applied at the following rates per acre :—Kainit, 5 cwt.; mineral superphosphate, 5 cwt.; nitrate of soda, 2½ cwt.; sulphate of ammonia, 2 cwt.

Onion Rousham Park Hero was the crop selected, and the following were the resultant crops :—Kainit, 5 tons 106 lb.; nitrate of soda, 2 tons 7 cwt. 32 lb.; sulphate of ammonia, 1 ton 19 cwt. 92 lb.; mineral superphosphate, 1 ton 13 cwt. 51 lb.

TRIAL OF OLD AND NEW VARIETIES OF POTATOS.

In 1919 some old and some new varieties of Potatos were planted on ground which had been bastard-trenched after a crop of Runner Beans, for which stable manure had been applied; the following were the varieties planted :—Magnum Bonum, Great Scot, Arran Chief, British Queen, King Edward, Express, King George, and Golden Wonder. No further manure was applied to the ground on which they were planted. The following were the results produced :—

Variety.	Tons	cwts.	lbs.	
Magnum Bonum	14	0	32	per acre.
Arran Chief	10	6	64	,,
British Queen	9	9	11	,,
King Edward	8	6	2	,,
Express	6	8	21	,,
Great Scot	5	15	12	,,
King George...	4	2	20	,,
Golden Wonder	1	14	105	,,

J. Udale.

HARDY FRUIT GARDEN.

POLLINATORS FOR COX'S ORANG PIPPIN.

Market Grower (p. 262), in looking aro
for suitable varieties to pollinate the flow
of Cox's Orange Pippin Apple, has made
very appropriate selection of suitable on
They flower at the same time, and five or
of them have long been proved as suita
pollinators. His list does not exhaust th
that have already been proved capable
setting Cox's Orange Pippin. Others
Devonshire Quarrenden, Duchess' Favour
High Canons, Lady Sudeley, Langley Pipp
Lord Grosvenor, Sturmer Pippin and Worces
Pearmain.

Thus, besides King of the Pippins, th
are two good selling market Apples, thou
also of poor quality, namely, Worces
Pearmain and Devonshire Quarrenden.
former requires to be eaten from the tree
get it at its best, but that point does not c
cern market growers. Duchess' Favourite is
better quality, but I have not seen it recen
in such quantity as in former years. Dev
shire Quarrenden, no doubt, enjoys gr
popularity in the market because of its ea
ness and colour.

In the issue of the *Gardeners' Chron*
for December 6, 1913, pp. 393-4, will be fou
an account of the value of Devonsh
Quarrenden for setting Cox's Orange Pipp
A plantation of the latter had been practica
barren for some years until interplanted w
Devonshire Quarrenden. Not only was
resultant crop good, but the fruits were lar
than usual during some successive yea
J. F.

A GARDEN SUBSTITUTE FOR FAR YARD MANURE.

THE soil is the essential medium for the p
duction of crops, and although some soils
naturally rich in potential resources, there
few, in this country at least, which can
cropped economically without the addition
manure. Hence a study of the material wh
must be added to the soil to increase its ferti
is of the greatest importance to the cultivat

From time immemorial the standard method
enriching the soil has been by the use of sta
manure and farmyard manure. With
extensive displacement of the horse
mechanical transport the supply of the form
has gradually diminished, until it has become
almost negligible quantity. The producti
of farmyard manure has also considera
decreased, owing to the reduction of the nu
ber of cattle in the United Kingdom by ab
800,000 head since 1919. Further, agricultu
needs more farmyard manure than it can p
duce for its own crops, hence horticulture
faced with the problem of finding a suita
substitute wherever such is necessary.

The practice of using farmyard manure
generations, and the fact that it is still
manure most in demand in cultivation, wo
seem to suggest that the principle of using
is sound. The theories advanced by reform
who wish to apply empirical formulae as
panacea for all ills are hardly acceptable, a
these formulæ may often be classed with t
nostrums of food faddists who would have
take all our nutriment in tabloid form.

Up to nearly a century ago the cultivation
land was governed by rule-of-thumb metho
and little was known of the processes involve
In 1840 the great chemist, Liebig, publish
his first work, showing that the processes we
chemical, and as the result of a large numb
of experiments based on the theories he th
brought forward, it was proved that at lea
ten elements are absolutely essential to t
normal growth and development of plant
Liebig's principles state that in the enti
absence of one or more of these elements t
soil will be incapable of supporting vegetatio

if any one element is present in insufficient ntity for the requirements of the plant, a imum crop cannot be obtained. A soil, ı, can only be termed fertile when it cons all the elements requisite for the nutrition lants in the required quantity, and in an lable form.

ith every crop a portion of these elements emoved, and although one part of this por may be again made up from the inexstible store of the atmosphere, another part ost, and must be replaced by man. The ility of a soil remains unchanged if all the ients abstracted by a crop are given back he soil by the application of a fertiliser.

effect, Liebig assumed that the question he fertility of soil was only one of supply missing chemical elements, and as a result real value of organic manure was minimised. application of his principles has certainly tly increased production, but experience vs that it is not sufficiently comprehensive. ent developments prove that the presence umus, or decayed organic tissue, in the soil ssential to fertility, and every successful ver realises that the best results can only obtained by the intelligent application of nic matter in conjunction with the so-called icial, or chemical, manures.

though it is known that the chief mineral nitrogen requirements of a crop can be easily lied by the application of chemical manures, rience shows that a plentiful supply of nic matter is indispensable for maintaining fertility of the soil. There is little doubt the superiority of dung is due not so much he mineral substance and nitrogen that it ains, as to the organic, humus-forming rial it is so largely composed of.

the exact nature of humus little is known, the term may be considered one of conence rather than explanatory. It is the substance usually associated with a rich and results from the decomposition of nic matter. Its influence as a fertiliser is ly indirect, and may be considered conently under three headings, namely, phy, chemical, and as a medium for soil eria.

a physical agent the effect of humus is nprove the drainage and tilth of the soil. increases to an enormous degree the area ble for root action, and may be illustrated magining the difference between an imper lump of clay and the same intersected in direction by innumerable channels through h roots, air, and moisture may pass. ius also helps the soil to retain moisture. example, experiments give the following ts :—

) lbs. of dry sand can hold 25 lbs. water.
) ,, ,, clay ,, ,, 50 ,, ,,
) ,, ,, humus ,, ,, 190 ,, ,,

ius is a non-conductor of heat, hence it rs that equable soil temperature so desir for steady growth.

emically, humus acts mainly as a catalytic t; that is, it promotes chemical reactions out apparently taking part in them. This of action is very common in chemical ions. For example, the chemical activity iany substances is increased many times absorbed by charcoal, and there can be oubt that the same kind of reaction occurs ie soil. Besides this, all decaying organic er contains a considerable proportion of ents of direct nutritive, chemical value as food. This cannot be disregarded, though proportionately less than in artificial res.

ially, there is the question of soil bacteria, are now regarded as of the greatest rtance in promoting certain chemical ions essential to soil fertility. These bac feed on the decaying vegetable matter, they help to break down, and render ible as food for plants. They can no live in a soil without humus than human s could live in a desert devoid of vegeta *W. Auton.*

(*To be continued.*)

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Primula erythrocarpa (See p. 255, Fig. 122).—It may interest Primula enthusiasts to know that P. erythrocarpa was flowering in the rock garden at Edinburgh, at the end of March. Other Primulas flowering there at that time were P. denticulata cashmeriana, P. Winteri, P. crispa, P. glaucescens, P. hirsuta nivea, P. chionantha, P. darialica, P. viscosa, P. The Jewel, an improved P. Juliae, and Polyanthus Barr's Blue. In the review of Dr. Macwatt's *Primulas of Europe* (*Gard. Chron.*, May 5), P. Marven is mentioned; this Primula is flowering in the Glasgow Botanic Garden. *F. W. J.*

Gardeners' Wages (see pp. 151, 166, 203, 232 and 263).—I shall be pleased to supply *T. W.* with particulars of my position in private service, in return for his cross references. I have taken the *Gard. Chron.* direct from the office for 25 years, and though too old for the Army I went into training for home defence during the war, and hold the R.H.S. Certificate for war services. I have no complaint to make for myself or men; we have a good employer and are as well paid as any in the profession. As regards the dole I am not in favour of it as a general thing, but, recently, a case was brought to my notice of a garden labourer with upwards of 20 years' service being discharged (for no fault), since when he has only had about two days' work a week. I think in this case the dole would be useful. As regards old servants, *T. W.* must remember that many estates have been closed, sold, or let, and there have been changes of employers; in such cases the gardener often has to leave, and then he may be too old to obtain another appointment. I quite agree that an ex-service man should have a fair chance if he had a gardener's position before joining up, but if he has a pension he is not so badly off as the older man out of work with no pension. Some ex-service men have very good pensions. I am pleased to see others think of these things, and the remarks of *H. Arnold* and *J. M. C.* should bring other opinions. *S. H. G.*

——During the past few weeks letters have appeared in the *Gard. Chron* which indicate that there is considerable discontent amongst the members of the horticultural profession. It seems that there are several things which could be done: (1) Work within the Agricultural Workers' Union for special consideration of the Horticultural Worker; (2) Form a separate Union of Horticultural Workers; (3) Establish a Guild of Horticultural Workers, and secure workers' control in the industry. I should be pleased to hear from readers who are anxious to improve the lot of the horticultural worker. *R. Sudell, 65, Huntingfield Road, S.W.15.*

——The discussion on gardeners' wages has brought forward many points, and as Mr. Arnold remarks (page 263), comparisons are odious; he also observes that more than enough has been written concerning the difference between the man who went to war and the man who stayed at home. I would like, however, to remind Mr. Arnold that those who stayed at home did not pass through the horrors of war, nor did they endure unspeakable hardships. Gardeners as a class did their duty, and the majority no doubt joined up early, but gardeners are made up of all sorts, and to my mind there is absolutely no comparison between the man who left "all" voluntarily, and the one who did not. Many gardeners have room for complaint regarding wages, and conditions in general. The soldier-gardener is no longer a soldier, and does not wish to go back over the past, but I would emphasise the fact that he deserves first consideration whenever possible. *Thomas Weimer Tylney Hall Gardens, Hampshire.*

Continuity of Flowering.—To those of us who have only small gardens and need to make the utmost use of every inch of space available, plants that give a maximum of flowers over the longest period are of the greatest value. It is for this reason that what are known as old-fashioned flowers are so valuable to the small grower, for these include such continuous bloomers as Sweet Peas, Delphiniums, Roses, Marigolds, Lychnis chalcedonica, Pyrethrums, etc. Whilst these old-time flowers are so beautiful, many of us like to have a few of the newer subjects, and amongst perennial flowers that fulfil the quality desired are the beautiful modern Geums, varieties of Erigeron speciosum, such Campanulas as persicifolia, Antirrhinums, Dianthus Allwoodii, Shasta Daisies, Pentstemons, Scabiosa caucasica and Achillea Ptarmica, Perry's variety. There are certain rock garden plants, too, which are always in bloom during the summer and into the autumn, and amongst these may be included the beautiful Cheiranthus Allionii, Geum miniatum, Achillea Kellereri (see Fig. 138), Campanula Andersonii, Polemonium reptans, Armeria alpina, Cerastium Biebersteinii, Meconopsis cambrica, Gentiana acaulis, Arnebia echioides, Cyananthus lobatus, and many of

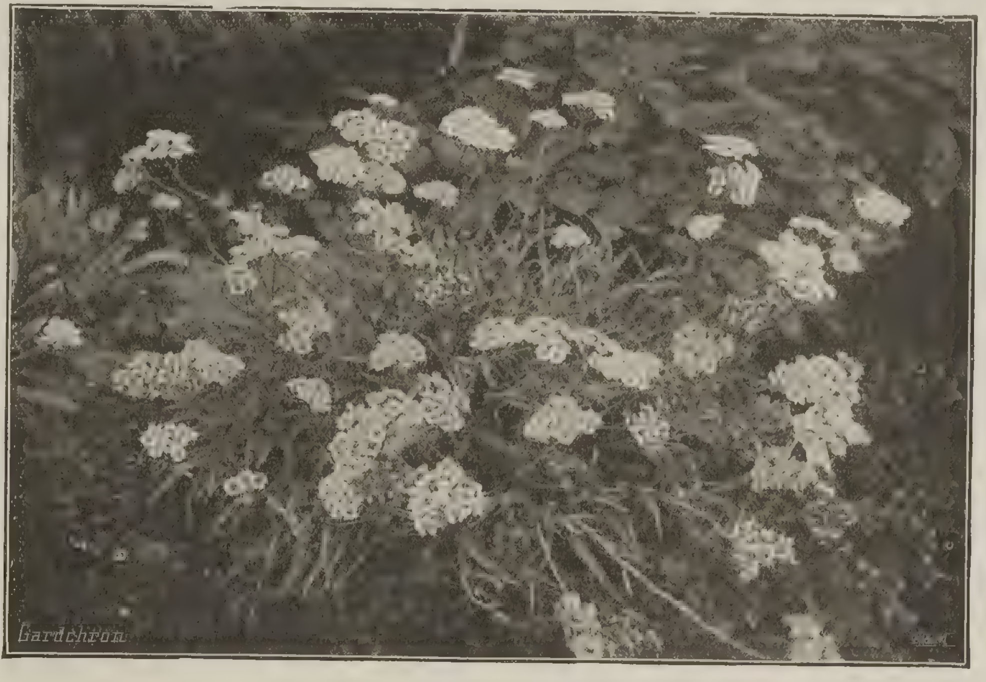

FIG. 138.—ACHILLEA KELLERERI.

the Alpine Pinks. These I name merely at random; it would be useful if one or more of your readers would compile a list of hardy plants, including Alpines, that have the longest season of flowering. *R.*

The Ascent of Sap.—In the illuminating article on this all-absorbing subject on p. 253, no mention is made of capillary attraction as an aid to the ascent of sap in plants. It seems to me that the ordinary process of osmosis and capillary attraction could account to a great extent, if not wholly, for the ascent of the sap. In the first place osmosis accounts for the whole supply of water available. Root pressure, however strong, is limited. The transpiratory pull exerted by the leaves when present (here termed "sucking force") is the acting agent at the extremities of the plant, and as the sap becomes concentrated by loss of water through transpiration, osmosis is playing its part all the time, and drawing water from cells behind which have a greater supply. A pulsating mechanism of cells would seem to suggest more rapid tension or inflation and emptying of cells than I would associate with osmosis, which is a steady diffusion of two liquids of different densities on the two sides of a membrane. The thinner liquid passes more rapidly into the denser solution than the dense one into the other. Evergreen trees and shrubs give off much water in winter, and that is why so many of them die when transplanted in winter, because they are giving off more water than the mutilated roots can supply. The long green and leafless stems of Roses behave in the same way, often dying from the tips downwards. Good rosarians cut them hard back the first year of planting, before they feel the effects of drying winds in spring. That places the dormant buds within reach of root pressure. With regard to capillarity, it is well known that water will rise from a great depth in close or compacted soil. In the same way it will rise in a tube, and the finer the tube the higher it will rise. In plants, especially woody ones, the sap filters through pressure into the interior of woody cells and vessels, before the leaves are expanded, and more or less during the night while transpiration is not active. During the day while plants are transpiring rapidly the lumen of cells and vessels is empty so that the sap must be ascending by the dense cell walls themselves. *J. F.*

Winter Purslane.—I believe the plant to which this name really belongs is **Veronica peregrina** *R. P. Brotherston.*

Rubber.—Further to my note on Rubber (p. 277), as to curing and the "improvements" in so-doing over the primitive smoking method of obtaining a "pelle" or ball, the market prices perhaps show the value of the improvements. For a good while I used to observe the prices in the papers, but I never remember seeing plantation Rubber so high as the Para—especially when remembering that the latter always has some amount of included water so that any difference is greater than appears. The planter needs to pay more respect to his trees and to the quality of his product; when Rubber is found to be bad and soon useless some other device comes along—the camera shutter release is an example, and most of these are now worked by a wire cable, I believe. Perhaps Gutta-percha should also receive some attention; some 20 years ago it realised, if memory serves me, 8s. against Rubber 3s. or 4s.; it was collected by natives in a crude and destructive way; the then Director of the Botanic Gardens told me Gutta-percha was no longer grown on Singapore island. *H. E. D.*

Slow-acting Manures.—There are several manures of considerable value which are so slow in decomposing that they are, if untreated, almost useless. Half-inch bones, rape meal, shoddy, leather dust and horn and hoof filings are all very slow to break down in the soil. Perhaps the slowest manure of them all is leather dust, to which reference has already been made in these pages. I suggest mixing either of these with fresh horse droppings or watering them with drainings from the stable. I have used rape meal as a manure for Roses for some years. At first it was so slow in its operation that I despaired of it, but on mixing it with stable manure and keeping it moist—a most important point or the heap grows hopelessly overheated—the good effect was most pronounced. I am told of half-inch bones being ploughed up in a field in Cornwall, almost unaffected after 32 years in a clay soil. If leather filings, etc., are mixed with fresh stable manure at the rate of one to three, I think there would be no question as to the solubility of the leather. *Harry Williams.*

SOCIETIES.

ROYAL GARDENERS' ORPHAN FUND.

ANNUAL FESTIVAL DINNER.

THE annual festival dinner of the Royal Gardeners' Orphan Fund was held on Friday, the 18th inst., at the Hotel Victoria, Northumberland Avenue, W.C. Mr. George Monro presided, and the company, which included several ladies, numbered about one hundred and sixty. Mr. Monro was accompanied by Mrs. Monro, and was supported by many prominent horticulturists, including the Rt. Hon. Lord Lambourne, Mr. Leonard G. Sutton, Mr. W. Lobjoit, Mr. and Mrs. J. E. N. Sherwood, Mr. and Mrs. H. W. Nutting, Mr. and Mrs. E. Manwaring, Mr. Whitpaine Nutting, Mr. John Poupart, Mr. A. W. White, the Rev. B. G. Bourchier, Mr. and Mrs. A. J. Monro, Mr. Geo. Cobley, Mr. Donald Monro, Mr. W. Lawrence Bradbury, Mr. H. O. Serpell, Mr. and Mrs. J. E. Dixon, Mr. and Mrs. J. M. Bridgeford, Mr. and Mrs. Harry Miles, Mr. and Mrs. D. Ingamells, Mr. and Mrs. J. F. McLeod, Mr. W. Bates, Mr. W. E. Churcher, Mr. G. Ingram, Mr. D. Swain, Mr. P. R. Barr, Mr. and Mrs. G. H. Barr, Mr. W. Howe, Mr. J. B. Leech, Mr. and Mrs. H. J. Jones, Mr. and Mrs. A. Dimmock, Mr. and Mrs. J. Linford, Mr. and Mrs. J. Collingridge, Mr. C. H. Curtis, Miss E. Colt, Mr. A. Metcalfe, Mr. and Mrs. A. Howard, Mr. and Mrs. G. F. Tinley, Mr. and Mrs. J. Cull, Mr. and Mrs. W. Auton, and Mr. and Mrs. J. Wort.

The dinner was held in the beautiful Edward VII. room, which presented a very charming spectacle, the tables being most daintily decorated for the occasion by Mr. Harry Miles, who employed Tulipa Gesneriana lutea with Nigella Miss Jekyll, that contributed a charming, hazy-blue tone, and a few other subjects, such as pale blue Irises, white Cytisus and Briza maxima—a simple yet very charming scheme of floral decoration.

After the usual Royal toasts had been acknowledged, the chairman proposed the toast of the evening, "The Royal Gardeners' Orphan Fund." Mr. Monro stated that many people thought the benefits of the fund were confined to the orphans of private gardeners, but the committee was empowered to decide who were eligible and who were not, and they exercised that discretion very broadly and included orphans of nursery foremen and departmental managers in seed businesses. The committee has power to grant allowances of 5s. a week to each orphan and children may be placed on the fund as young as one or two years of age. At the present time the fund is responsible for allowances to 103 children, and the benefit the weekly allowances afforded to mothers was emphasised by extracts read from letters received from mothers whose children had benefited by the fund. The committee has also power to make temporary grants to children awaiting election, and at the present time two children whose claims had been approved by the committee are being granted 2s. 6d. each per week. These two children are the orphans of a nursery foreman. In addition to this, the committee has the power to make grants not exceeding £10 when the orphan children cease to receive the allowance, and this sum may be expended on an apprenticeship, in providing a suitable outfit, or in other ways that the committee may approve. For example, during the past year a sum of £5 was granted to a lad to enable him to purchase carpentry tools, whilst another who had secured employment several miles from home was given
£5 towards the purchase of a bicycle. Du
former years the fund was enabled to put
small sums as an investment, and interest f
investments was a valuable source of inco
During the war, when, perforce, the an
dinners had to be abandoned for several ye
the management was obliged to sell some of
invested funds, and it was the earnest desir
the committee to make good these investm
at the earliest opportunity. Mr. Monro refe
to various methods by which the fund
helped, including the organisation of entert
ments and special appeals, such as the one m
by Mr. H. J. Jones, a keen supporter of
fund, who had a leaflet printed and circul
in his catalogue, appealing for donations
2s. 6d. He referred to the trust which
founded by the Gardeners' Company, to pro
an allowance to a male orphan in perpetu
Mr. Monro congratulated the fund on havi
most enthusiastic chairman and treasurer, a
committee of hard-working, enthusiastic busi
men.

Mr. Sherwood, the hon. treasurer, respon
He made a strong appeal for the restoratio
the reserve fund to its pre-war basis, and st
that a sum of £1,650 was needed to enable
to be done.

Mr. Leonard Sutton proposed the healt
"The Visitors," and extended a welcome t
the visitors present. He expressed the hope
they would cease to be merely visitors,
would become interested in and subscribe to
Royal Gardeners' Orphan Fund, and espec
was he glad to see Mr. W. Lobjoit with t
for although horticultural traders were
particularly anxious to see Government
cials, they were always delighted to see
Lobjoit, Controller of Horticulture, because
man engaged so long in the business
thoroughly understood their difficulties, and
felt sure that in him they had one who w
always do his very best to advance the inte
of horticulture. Mr. Lobjoit, in respon
stated that it was a great pleasure to be a
at such a dinner, and he felt honoured tha
toast of the visitors had been trusted to
whose career was so distinguished the wide
over as that of Mr. Sutton. He said: "I
the committee their interesting work in wat
over the lives of orphans and hope that
children will be so trained that some day
will add distinction to our land."

At this stage Mr. Geo. F. Tinley, in
unavoidable absence of the secretary, Mr.
Wynne, through indisposition, announced
amount of the donations, which he said
ceeded £1,200. The principal contributions
the chairman's list, amounting to £385; in
was included sums collected by Mr. David
mells in Covent Garden Market, amountin
£175. The chief items in the chairman's
were his own donation of £100; Mrs. G. M
Senr., £10; Mr. A. J. Monro, £5 5s.; M
Monro, £5 5s.; Messrs. E. Stevens, £10
Mr. R. Rochford, £10 10s.; the Rt. Hon.
Lambourne, £5; Mr. D. Ingamells, £10
Mr. H. Larsen, £10 10s.; Mr. J. Cull, £10
Mr. H. Miles, £10 10s.; Mr. J. Miles, £10
Mr. W. Robins, £8 8s.; and Mr. Da
£6 6s. Other sums included Messrs. Hurst
Son, £100; Mr. F. C. Stoop, £100; Messrs.
ton and Sons, 50 guineas; Mr. J. M. Br
ford, 50 guineas, including £10 10s. from
A. Watkins and £5 5s. each from Mr. Br
ford and Mr. A. Howard; Mr. W. Nu
£56 6s.; Mr. H. J. Jones, £43; Mr. G
Tinley, £25 15s. 6d., including £5 5s. fro
proprietors of the *Gardeners' Chronicle*; £6
from the *Gardeners' Chronicle* collecting
£5 from Mr. W. L. Bradbury; and £5 5s.
Mr. J. C. Allgrove; Mr. J. F. McLeod,
Mr. J. E. Dixon, £23; Mr. D. Swain, £14
Mr. W. Howe, £14 3s., including £10 fro
E. Tait; £10 10s. each from Sir E. Stern.
Sir J. Colman, Bt., Mrs. Campbell, M
Corry and Co., Mr. R. Cory, Messrs. Bar
Sons, Mr. C. R. King and Mr. E. Manwa
and Mr. G. Reynold's list, amounting to £

The chairman's health was proposed by
Lambourne in his usual felicitous style. D
the evening an excellent musical programm
rendered under the direction of Mr. R. N

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this society was held n the R.H.S. hall on Monday, May 14, Mr. Chas. H. Curtis presiding.

Nine new members were elected. Three members withdrew interest amounting to £13 7s. 6d., and three members drew £23 from their deposit accounts. The sum of £60 10s., plus £10 uneral benefit, was paid to the nominee of one deceased member.

The sick pay for the month on the ordinary side came to £95 0s. 10d., and on the State side o £75 17s., and maternity claims amounted to £10. Grants for dental treatment were made to hree members, amounting to £12 10s.; and hree other applications were considered. The rustees reported that they had invested a further sum of £1,500.

BATH AND WEST OF ENGLAND AGRICULTURAL.

This Agricultural Show, which was held at wansea, from the 17th to the 22nd inst., in- uded a horticultural section. A special arquee contained the horticultural exhibits, nd the big tent was a blaze of beautiful olour. The show was visited by H.R.H. the rince of Wales, who was conducted through e special marquee by Lord Blythswood. The ıblic was excluded during the visit, and the rince was keen interested in the exhibits; e spoke to most of the attendants, asking ımerous questions.

Messrs. W. Cutbush and Son, Highgate, occu- ed one end of the tent with an attractive ex- bit, having a groundwork of dwarf Polyantha oses and Hydrangeas. Tall weeping standard oses were grouped at appropriate spots. On a ntral staging Messrs. R. Veitch and Son, xeter, staged a very interesting exhibit of rare rubs, including a fine specimen of Edwardsia andiflora, with its curious parrot-bill like wers; Tremandra verticillata, a native of ıstralia, a very interesting plant studded with merous purplish flowers, and Leptospermum scawenii.

Messrs. Dobbie and Co., Edinburgh, had a presentative collection of Sweet Peas of re- rkably fine quality. Prominent amongst the west varieties were Mary Rose (a 1923 velty), a lovely shade of soft pink; Dignity, bbie's Orange, and Orchid.

Messrs. Barr and Sons, Covent Garden, had group of Tulips, which presented a gorgeous ze of colour. The collection included more n 100 varieties, prominent sorts being the onze-coloured Louis XIV.; Negro, almost ck; Mrs. Kerrell and W. T. Ware; this ibit was pleasingly finished off with little ups of Alpines.

Messrs. Stuart Low and Co., Bush Hill rk, had a bright stand of Carnations, in- ding the varieties Red Ensign, Hon. Char- te Knollys, and White Pearl. They also wed a few choice Orchids.

Messrs. Wallace and Co., Tunbridge Wells, ibited a group on the ground that formed suitable end piece to the central staging. ododendrons were the chief feature: there e fine examples of Rhododendrons Dr. Endz. ıntess Athlone, and the brilliant scarlet iety Britannia. This exhibit also included ups of Lilium regale and Iris Hoogiana.

Messrs. Harris and Sons, Swansea, filled the eme end of the tent with a magnificent up of Rhododendrons, the most prominent g very fine specimens of Loder's White, Port, a curious wine colour, and White rl.

essrs. Blackmore and Langdon, Bath, ved Delphiniums. Among the best varieties e T. S. Ware, a lovely dark purple colour, n conspicuous white eye, Lavanda and Blue en. A collection of Begonias staged by this included many fine varieties.

essrs. Allwood Bros., Haywards Heath, an artistic bank of Carnations. The varie- Ed. Allwood, Chintz-and White Enchantress were well shown, as also were several varieties of Dianthus Allwoodii.

Messrs. M. Prichard and Son, Christchurch, staged a group of interesting hardy flowers consisting of Lupins, Pyrethrums and Papavers, also some choice Alpines.

Messrs. Bakers, Ltd., Wolverhampton, had a miniature rock-garden, which greatly interested the Prince of Wales.

Messrs. J. Cypher and Sons, Cheltenham, showed a varied collection of greenhouse plants.

Messrs. Barber and Black, Swansea, showed Rhododendrons, Hydrangeas and Geraniums.

Other exhibitors were Messrs. W. Treseder and Sons, Cardiff, flowering plants; Messrs. Godfrey and Sons, Exmouth, Lupins, Oriental Poppies and Pelargoniums; Mr. Engelmann, Saffron Walden, Carnations; Messrs. Ellison and Sons, West Bromwich, Ferns; The Devon Rosery, Torquay, a general collection of flowering plants, including Roses in pots; Messrs. Rich and Co., Bath, Poppies and Anemones; Messrs. Toogood and Sons, Southampton, Tulips and a few vegetables. The only amateur exhibit came from Sir John Llewelyn, Penllergaer, near Swansea, who showed some good trusses of Rhododendron Falconeri, Hippeastrums in variety, and a few hybrid Primulas. The show was well attended and was a great delight to the hundreds of miners and their families who came in great numbers from the neighbouring villages.

NEW HORTICULTURAL INVENTIONS.

Latest Patent Applications.

12,661.—Arnecke, A.—Distributors for fertilisers, seeds, etc. May 11.

11,911.—Bull, G. F.—Device for cutting weeds, etc., from lawns, and replacing same with turf. May 3.

11,£54 —Waltham, T. E.—Preserving and packing seeds. May 2.

11,234.—Fletcher, A. J.—Apparatus for spraying fruit trees, etc., with powder insecticides. April 25.

10,819.—Allan, A. B.—Hedge-cutting machines. April 21.

10,625.—Holt, W. G.—Gardening tool. April 18.

Specifications Published This Month.

196,788.—Capbell, P. A.—Lawn-mowers.

196,833.—Koch, E. J.—Implements for removing portions of the bark of trees.

196,877.—Elder, D.—Water sprayer.

196,524.—Deutsche Ges. fur Schadlingsbekampfung.—Insecticides.

196,012.—Vielle, J. A.—Process for the manufacture of insecticidal and fungicidal preparations.

196,212.—Pugh, C. H., Ltd., and Bell, G. F.—Rotary cutters of lawn-mowers.

195,908.—Jardine, C. A.—Pruning-shears.

Abstract Published This Month.

Garden Line and Spacer.—Patent No. 194,416.—A novel appliance for spacing and arranging plants in line has been designed by Mr. J. Cox, of 7, Collis Street, Amblecote, Stourbridge. Two pieces of wood, each about 17 inches long, joined at their centres to form a cross, this giving a measure of about one foot from point to point. Brackets attached to this support carry a ratchet reel, and the line from the reel passes through a hole in the centre of the support.

This list is specially compiled for *The Gardeners' Chronicle* by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London, from whom all information relating to Patents, Trade Marks, and Designs can be obtained gratuitously.

Messrs. Rayner and Co. will obtain printed copies of the published specifications only, and forward on post free for the price of 1s. 6d. each.

TRADE NOTE.

Under the heading of "Industries of Gloucestershire," *The Gloucestershire Chronicle* has published an illustrated account of the firm of Messrs. J. C. Wheeler and Son, Ltd., of London Road, Gloucester. The paper states that this is a firm of which the city has every right to be proud for a variety of reasons. Messrs. Wheeler have been trading for one hundred and seventy years, so that the firm may truly claim to be one of the city's most venerable concerns. The business was founded in 1753 by Mr. James Wheeler, who was the author of *The Gardener's and Botanist's New Dictionary.* Mr. Wheeler lived to the ripe old age of ninety-four, and when he died the business passed under the control of his sons, Edward and William Wheeler. At their deaths, Mr. James Cheslin Wheeler became the proprietor, and he was followed by Mr. A. C. Wheeler, who was a prominent citizen, and eventually filled the post of chief magistrate. The business continued to prosper, and, following the death of Mr. A. C. Wheeler in 1899, it was converted into a private limited liability company, with registered offices at 99, Northgate Street. Many of the employees have been with the firm for very long periods, several for forty years; one, Mr. J. T. Smith, recently completed his sixtieth year of service.

ANSWERS TO CORRESPONDENTS.

Formation of Putting and Clock Golf Greens: *J. S. J.* No hard and fast rule can be laid down as to the correct method of setting out a golf putting course. Generally it resolves itself into a question of making the best of the ground available for the purpose. In order to give interest to the game, it is essential to vary each hole as much as possible, both in regard to its length and the character of the course. The distance from the starting point to the hole may vary from fifteen feet to forty-five feet, according to circumstances. As you appear to have close upon half an acre of ground at your disposal and you only desire to provide nine holes, it will be possible to make the distance between the starting points and the holes much greater. On the other hand, by careful arrangement you might easily increase the number of holes. Apart from keeping the grass closely mown and the turf well rolled, the most important matter to be attended to in the maintenance of a putting course is the changing of the starting points and the position of the holes, as they get worn by play. In setting out a green for clock golf the position of the hole should be so arranged that each of the twelve starting points is a different distance from it.

Improving a Yew Hedge: *F. N. B.* It would not be advisable to use blood manure for a Yew hedge that has not become well established. The roots cannot be sufficiently vigorous to be able to take advantage of forcing manures, and such manure would be likely to do more harm than good. You cannot do better than leave your hedge to nature, and you will probably see a great improvement during the coming summer. We do not advise the use of fresh blood for trees at any time, and prefer liquid cow manure. Dried blood is more easily applied than the fresh article, and is much safer for inexperienced persons to use. Salt as a weed-killer may be applied at the rate of one pound to 16 square yards, but a good deal depends upon the number of weeds and the position as to the quantity required. Washing soda dissolved in water and used at the rate of one pound to 12 gallons of water will kill weeds.

Marechal Neil Rose: *F. S.* The dropping of the foliage of your Marechal Neil Rose points to some check to growth, such as would be caused by drought or a sudden fall in the temperature. The slight signs of canker at the collar would hardly be responsible for the sudden defoliation of the plant, but if the disease is allowed to spread, this would probably result in the death of the plant.

MARKET CROPS: *E. L.* 1. Peas followed by Broccoli are probably as profitable as anything in the way of vegetables. The Peas need not have sticks, and the Broccoli plants may either be raised at home or bought when required. Potatos are suitable for growing between young trees, but have not been profitable in recent years. In early districts spring Cabbages, Wallflowers, and spring Onions are grown, and these crops have the advantage in that they leave the land free for cultivation during the summer. Some growers plant bulbs, chiefly Daffodils, for cut bloom. Strawberries are another possibility. Of course, all inter-crops are liable to interfere with spraying, cultivation, etc., and generally need a lot of labour. For this reason we prefer to plant bush fruits between the trees at the start, preferably in such a way that cultivation can be done in two directions. 2. It is not likely that the Plums are suckers, unless they are of the Yellow Pershore variety, which is often propagated in that way. They are probably budded on stocks. 3. Sell the bedding plants in the boxes. 4. The eggs are those of the Lackey Moth.

MILLIPEDES IN VINERY BORDER: The millipedes are not insects, but as they are general feeders they are capable of doing a good deal of harm in gardens, although at the same time they prey upon slugs, small snails, and the larvae and pupae of insects, consequently they compensate for some of the harm they are capable of. Probably soil fumigation would dispose of a considerable number, but if the turf is being used for potting or other purposes, the millipedes should be removed when it is being broken up.

NAMES OF FRUIT: *Gardener, Herts.* 1, Annie Elizabeth; 2, Alfriston.

NAMES OF PLANTS: *G. J. W.* 1, Aucuba japonica var. longifolia; 2, Olearia Haastii; 3, Gasteria verrucosa; 4, Aloe arborescens. *J. R. K.* 1, Cotoneaster frigida; 2, Amelanchier canadensis; 3, Viburnum Lantana; 4 Pseudotsuga Douglasii var. glauca; 5, Prunus pseudocerasus var. *E. C.* Cytisus purpureus (Purple Broom). *A. F.* Very poor specimens; probably an Ixia of some kind.—*Leicester*. Veltheimia viridifolia.—*Miss E. B.* Specimens too scrappy to be of any service in determining their names.—*C. H. H.* Dendrobium Dalhousieanum, commonly known in gardens under that name, but referred by some authorities to D. pulchellum.

PRIMULA LEAVES SCORCHED: *A. B.* Red spider was present on one or two of the Primula leaves, but on several of them there were evidences of scorching, due to the action of sunlight after the plants had been watered.

TOMATOS DISEASED: *Cavan.* From your description we suspect your plants are affected with stripe disease. Watering the soil once a week with a dilute solution of potassium sulphate at the rate of 1 lb. to 100 gallons will often cause affected plants to recover. Potash fertilisers are specially necessary when nitrogen is present in quantity. All diseased plants should be removed and destroyed by burning, as this disease is easily spread, and care should be taken to sterilise the knife used for pruning any suspected plants by wiping the blade with a cloth soaked in two per cent. Lysol, before using it again on plants that are apparently healthy.

WOODLICE: *A. B.* A good method of destroying woodlice is to mix Steiner's "Vermin Paste" with barley meal or middlings, and put the poisoned meal on pieces of glass, wood or tin in the haunts of the woodlice. The creatures may also be trapped by placing scooped out Oranges or Potatos near their haunts, or by filling pots with damp moss or fresh horse manure.

Communications Received.—C. H.—P. S.—S. S.—E. J. T.—W. M.—R. C.—W. C.—J. McC—G. H. K.—K. F. F.—G. H. J.—E. H. W.—P. E. S.—A G.

MARKETS.

COVENT GARDEN, Tuesday, May 22.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz.	10 0–18 0
—elegans	10 0–12 0
Aralia Sieboldii	10 0–12 0
Araucarias	30 0–48 0
Asparagus plumosus	12 0–15 0
—Sprengeri	12 0–18 0
Aspidistra, green	48 0–72 0
Asplenium, per doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Azaleas, 48's per doz.	30 0–48 0
—60's	18 0–24 0
Boronias	21 0–27 0
Cacti, per tray, 12's, 15's	5 0– 7 0
Cinerarias 48's per doz.	10 0–15 0
Crotons, per doz.	30 0–42 0
Cyrtomium	10 0–15 0
Erica melanthera „ 48's per doz.	24 0–36 0
„ nivalis 48 „	24 0–30 0

	s. d. s. d.
Erica nivalis	
„ 60 „	10 0–15 0
„ Thumbs „	6 0– 8 0
Genistas 48's per doz.	15 0–18 0
Heliotropes	15 0–18 0
Hydrangeas white & pink,	
—48's, doz.	24 0–30 0
Marguerites, per doz.	18 0–24 0
Mignonette	10 0–15 0
Nephrolepis, in variety	12 0–18 0
—32's	24 0–36 0
Palms, Kentia	24 0–30 0
—60's	15 0–18 0
—Cocos	24 0–36 0
Pelargonium	18 0–24 0
Pteris, in variety	12 0–21 0
—large 60's	5 0– 6 0
—small	4 0– 4 6
—72's, per tray of 15's	3 6– 4 0
Spiraeas	15 0–18 0
Stocks, White & Coloured	12 0–15 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum, decorum, doz. bun.	12 0–15 0
—cuneatum, per doz. bun.	8 0–10 0
Asparagus, plumosus, per bun.	
long trails, 6's	4 0– 5 0
med. sprays	2 6– 3 6
short „	1 0– 1 6
—Sprengeri, per bun.	
long sprays	2 6– 3 0
med. „	1 3– 1 6
short „	0 9– 1 0
Carnations, per doz. blooms	3 0– 5 0
Cornflowers. per doz. bun.	4 0– 5 0
Croton leaves, var., per bun.	2 6– 4 0
Gardenias, 12's, per box	4 0– 5 0
18's, per box	2 6– 3 0
Gladiolus, The Bride, per doz. bun.	30 0–36 0
—Blushing Bride, per doz. bun.	24 0–30 0
—Peach Blossom, per doz. bun.	30 0–36 0
—Ne Plus Ultra, per doz. bun.	30 0–36 0
Fern, French per doz. bun.	1 0– 1 3
Forget-me-not per doz. bun.	4 0– 6 0
French Flowers	
—Anemone, St. Brigid, mxd. per doz. bun.	4 0– 6 0
—Marguerite, yellow, per doz. bun.	3 6– 4 0
—Ranunculus, Scarlet, per dz. bun.	4 0– 5 0
Heather, white per doz. bun.	4 0–10 0
Iris, Spanish, white per doz. bun.	36 0–42 0
—Spanish, blue, per doz. bun.	24 0–36 0
—Spanish yellow, per doz. bun.	24 0–36 0
—Spanish mauve, per doz. bun.	24 0–30 0

	s. d. s. d
Iceland Poppy, per doz bun.	5 0– 6 0
Ixia, per doz bun.	3 0– 4 0
Lilium speciosum	
long per doz.	9 0–10 0
short „ „	6 0– 8 0
Nigella, per doz. bun.	9 0–12 0
Lily of the Valley, per doz. bun.	18 0–36 0
Orchids, per doz.	
—Cattleyas	18 0–30 0
—Cypripediums	3 0– 4 0
Pæony, double white, 6's per doz. bun.	— —
—double pink, 6's, per doz. bun.	18 0–24 0
—double red, 6's, per doz. bun.	18 0–24 0
Pelargonium, per doz. bunch, double scarlet	10 0–12 0
Pyrethrum, double white, per doz. bun.	— —
—double pink, per doz. bun.	8 0– 9 0
—single pink, per doz. bun.	7 0– 9 0
—single red, per doz. bun.	8 0– 9 0
Richardias (Arums) per doz.	8 0–10 0
Roses, per doz. blooms—	
—Melody	3 0– 4 0
—Ophelia	3 0– 5 0
—Richmond	3 0– 4 0
Smilax, per doz. trails	6 0– 7 0
Stephanotis, per 72 pips	3 6 —
Stock, per doz. bun. mauve	9 0–15 0
—white per doz. bun	9 0–18 0
Sweet Peas, per doz bun.	6 0–18 0
Tulips, Single—	
—yellow, per doz. bun.	8 0–15 0
Violas, per doz bun.	1 6– 2 0

REMARKS.—The cold weather during the past few weeks has had a disturbing effect on the general supplies in this department. During the past week many salesmen have remarked that they have never experienced such a shortage for the Whitsuntide trade, and the supplies of many subjects were much below requirements. White and scarlet blooms realised high prices during the latter end of the past week. Scarlet Carnations, Lilium longiflorum, and Richardias (Arum were in great demand for the provincial trade, a large consignments of other blooms were required f the provinces. Double white Narcissus is one of t most attractive subjects. Small consignments of doub white Pyrethrum arrived from Holland and met wit a ready demand, in spite of its unusually high pri Small consignments of the coloured varieties, bo single and double flowered, have commenced to arr from home growers, and at the present time the flowers are greatly welcomed. Gladioli and Irises we soon all sold, also Roses of all grades. Prices a expected to fall during the next few days to t normal, especially if more favourable weather sets i It will be difficult to give a correct quotation of pric during the next few days.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples— Victorian, N. S. Wales, Tasmanian & W. Australian	
—Cox's Orange Pippin	14 0–16 0
—Ribston Pippin	10 0–12 0
—Jonathan	10 0–11 0
—Cleopatra	13 0–— –
—Worcester	11 0–12 0
New Zealand	
—Jonathan	11 0–12 0
—Dunn's Seedling	11 0–12 0
—Cleopatra	14 0–14 6
—Others	10 0–12 0
Apricots, crate	12 0–14 0
Bananas, singles	16 6–27 0
—doubles	22 6–30 0
Cherries—	
Half-sieve	8 0–12 0
Box	2 0– 2 6
Figs special	10 0–15 0
best.	6 0– 9 0
Gooseberries—	
—Devon, lb.	0 6– 0 7
—Kent, ½ sieves	12 0–14 0
Grapes—	
—New Black Hamburgh	3 6– 5 6

	s. d. s
Grapes—	
—Belgian	3 6– 4
—English muscat	12 6–1
Grape Fruit—	
—Jamaica	— —2
Lemons—	
—Messina boxes	8 0–10
„ cases	15 0–1
—Naples	18 0–2
Melons, English and Guernsey, each	4 6–1
Nuts—Brazils	45 0–4
Oranges—	
—Denia	16 0–2
—Murcia	16 0–2
—Jaffa	12 0–1
Peaches—	
—English, doz.	18 0–
—Belgian doz.	7 6–1
Pineapples, case	14 0–4
South African	
—Grapes	
Raisin Blanc.	10 0–1
Lady Downe's Seedling	– —1
Strawberries spec	10 0–1
„ best	4 6–

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, bundle	
—Special Devon	10 0–12 6
—Spec. Evesham	10 0–18 0
—Best „	3 6– 6 0
Beans—	
—Guernsey, lb.	1 6– 2 0
—Madeira basket	2 6– 3 6
—Worthing	1 6– 2 0
Broad Beans, pad	3 0– 3 6
Beets, cwt.	2 6– 4 0
Cabbage, dozen	1 6– 2 6
Carrots cwt.	2 0– 3 0
—New, dozen	8 0–10 0
Cauliflowers, doz.	4 0– 8 0
Cucumber, Flat	16 0–20 0
Greens, bag	1 3– 2 0
Lettuce—	
—English	1 0– 2 0
—Dutch, crate	3 0– 3 6
Marrows, doz.	10 0–18 0
Mint, doz.	3 0– 6 0
Mushrooms, lb.	1 6 –2 6
Onions—	
—Dutch, bag	3 0– 4 0
—Egyptian	8 6– 9 6

	s. d.
Onion.	
—English, cwt.	5 0–
Parsnips, cwt.	2 6–
Peas, lb.	
—Guernsey	1 0–
—French, pad.	4 0–
Potatos,	
—Canary Island case	9 0–1
—Spanish, cwt.	18 0–2
—Guernsey, new, lb.	22 0–2
—Jersey	23 0–2
—King Edward	£3 –
—Others	£2 5–
Radishes, doz.	1 0–
Spinach, bushel	3 0–
New Turnips, doz. bunches	8 0–1
Tomatos—	
—English	10 0–1
—Pink and Pink and White	11 0–1
—White	9 0–1
—Blue	8 0–1
—Guernsey	10 0–1
—Canary Islands	14 0–2

REMARKS.—The general demand throughout last w was moderately good. The cold weather shorte supplies in some directions, and values were hig but the reaction after the Whitsun holiday bro lower prices during the earlier part of this w Apples from Australia, Tasmania and New Zeal have been in some demand, and continue a ste trade. Choice fruits have been unfavourably aff by the cold weather, which has greatly restricted demand. Trade in forced Peas and French Beans very good last week, but they have since eased price. Asparagus, particularly from the Evesham trict, sold at satisfactory prices owing to sh supplies, but this week values are lower. Cher from France are arriving in fairly good cond and the first Apricots have made their appearan Covent Garden Market. Gooseberries from Kent the West of England have been in better sup New Potatos from Spain are cheaper, as also are Potatos from the Channel Islands. Cauliflower scarce and dear. Green vegetables are moderat price.

GARDENING APPOINTMENT.

Mr. E. Durham, for the past seven months Gar to G. F. MOORE, Esq., J.P., Chadwar, Bo on-the-Water, Gloucestershire, as Gardener to H. MORDEY, Esq., The Spinny, Sully, Gl ganshire. (Thanks for 2s. for R.G.O.F. Box.—

CATALOGUES RECEIVED.

DICKSONS, Chester.—Bedding Plants and Dahlias.

BARR & SONS, King Street, Covent Garden.—Bed Plants.

D. J. SMITH & CO., LTD., Compton Works, Wick Essex.—The "Climax" Motor Mower.

THE
Gardeners' Chronicle
No. 1901.—SATURDAY, JUNE 2, 1923.

CONTENTS.

erdeen, proposed forestry chair at .. 296
pine garden—
Viola Alannah .. 299
its, destruction of .. 296
rk cloth 295
oks, notices of—
The Fundamentals of Fruit Production .. 295
Botanical Magazine," original drawings of the 295
acken and pigs .. 296
rmyard manure, a garden substitute for 299
rnery, the—
Onoclea sensibilis .. 299
uit industry of South Africa 295
Gardeners' Chronicle" seventy-five years ago 296
llier, Mr. J. Masters .. 296
Obituary—
Thomas, Owen .. 312
Pea, a prolific 296
Plants for the flower garden, specimen .. 297
Plants new or noteworthy—
Magnolia Kobus var. borealis 301
Societies—
Royal Caledonian Horticultural .. 312
Royal Horticultural 302
Women's Farm and Garden 311
Trees and shrubs—
Varieties of Lavender 301
Ward's, Mr. Kingdon, seventh expedition in Asia 300
Week's work, the .. 298
Wisley, notes from .. 297

ILLUSTRATIONS.

rnation Eileen Low 297
myon, the cupola-shaped, snow-capped peak of, with Conifer forests in the foreground 300
llier, Mr. J. Masters, portrait of 296
drangea Parsifal exhibited at the Chelsea show by Mr. H. J. Jones 305
ly garden exhibited at the Chelsea show by Messrs. R. Wallace and Co. 307
gnolia Kobus var. borealis 301
ontonia Olivia exhibited at the Chelsea show .. 302
chid exhibit at the Chelsea show, part of Messrs. J. & A. McBean's 303
ck gardens at the Chelsea Show 304, 306, 308
se, Capt. F. S. Harvey Cant 299
Supplementary coloured illustration: Nerine Bowdenii

erage Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 57.1°.

tual Temperature:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 30, 10 a.m.: Bar. 30.2; temp., 57°. Weather—Fair.

The undamentals of Fruit Production.[*] Fruit growers interested in the science of their craft and students of pomology will be grateful to the authors of this volume for bringing together and weigh- g with care the numerous and very scat- red fragments of knowledge on the science fruit-tree cultivation. The authors have ne their work well, and therefore the pre- nt lack of assured scientific knowledge on any subjects pertaining to fruit cultivation the more evident. By recording what is own the authors have incidentally revealed w much remains to know and thereby ve, as we hope, given a powerful stimulus further investigation.

The first section of the book, dealing with water relations," contains valuable infor- ation both on the water requirements of ops in general and on the methods of soil anagement used to conserve water. Un- rtunately data are not available to show the ecise water requirements of the chief fruit ops. These requirements no doubt vary— is in fact indicated in Tables 2 and 12, it until the range of water requirements of given kind of fruit is known, it can arcely be claimed that we are able to deal ith fundamentals. Speaking generally, and top fruits, it is probable that in fruit-grow- g districts of this country water supply is rely if ever a limiting factor in crop production. Even so, a knowledge of water requirements of fruit crops is much to be desired; for that knowledge must be taken into account before a scientific system of spacing of the trees of an orchard can be determined. Needless to say other factors must also be taken into consideration, and of these the nature of the stock is one of the most important. The wide range of root run of Apples has recently received attention in this country, and it is evident that in orchards planted too closely with permanent trees and fillers there may, in dry years, be a shortage of the water available for the roots. But unfortunately it is not known to what extent the total yield of an orchard over a period of years is affected by what might be, as judged from the vegetative growth of the trees, a deficiency of water supply. As the authors observe (p. 185), "a diminution of water supply is well known to be associated frequently with fruitfulness"; but "science is measurement," and until this observation made by successions of gardeners and growers can be expressed with greater accuracy and correlated with some definite change or changes in the biochemical processes of the plant, there must remain a wide field open to investigators of fruit tree physiology. In Section II the nutrition of plants in general and of fruit trees in particular is considered. The treatment of this difficult subject is admirable, although the conclusions which are to be drawn from the data presented are by no means clear. Practical fruit growers generally act on the maxim "manure small fruit, but not top fruit," and the experiments carried out by the late Spencer Pickering in this country would appear to confirm the latter part of the maxim. Nevertheless the experimental evidence (Table 66) presented by the authors points definitely to the value of nitrogenous fertilisers in increasing the yield of Apples. It is much to be desired that one of the fruit Research Stations should undertake an investigation into this subject. It would have to be prolonged, and should start with young, recently planted trees, and continue at least until they are in full bearing. Perhaps not unrelated with the beneficial effects which appear to follow from the use of nitrogenous fertilisers is the interesting difference in nitrogen content of fruiting and barren spurs (Fig. 12, p. 135). Whereas barren Apple spurs, that is, spurs in their off year, have a nitrogen content which like that of other parts of the plant is at a maximum in March, falls to a minimum in June, and rises throughout the rest of the year, fruitful spurs contain more nitrogen in proportion to their dry weight, and the quantity goes on increasing markedly until May, when a fall sets in. In the third section the temperature relations of fruit trees are discussed, and as is but natural in a work emanating from the United States, considerable space is devoted to winter injury. More important perhaps to growers in this country is a knowledge of the influence of temperature on different kinds of fruit trees. For example, there would appear to be in the northern and midland parts of this country some factor—which may be low temperature or insufficient light intensity—which limits the fruitfulness of certain varieties of Pears grown in the open. In the present year this factor which, as it may be scarcely doubted, is traceable to the wet and sunless conditions of last summer, is in evidence in the south as well—the Pear crop promising to be generally a poor one. Judging from the maps (Figs. 60 and 61) showing the distribution in the United States of Apple and Pear orchards, although the range of the Pear has a distinctly more southerly trend than that of the Apple, there is in that country with its continental climate no such marked difference as we think would be discovered were cropping maps of the Apple and Pear in this country available for comparison. In subsequent chapters pruning, fruit setting and propagation are dealt with, and constitute a useful summary of knowledge on these subjects. This book should prove a useful and oft consulted companion of the scientific fruit grower, and should also serve a further purpose — already insisted upon—that of stimulating further investigation into the present insufficiently known fundamentals of fruit production.

Our Coloured Plate.—The coloured plate forming the supplementary illustration to this issue represents two inflorescences of Nerine Bowdenii, a very fine species imported many years ago from Cape Colony. The plant is hardy in the warmer parts of this country, where it flowers late in the autumn, while leafless. The rose-pink flowers are large, with wide, recurved and slightly wavy segments. The usual flowering period in the South of England is from the end of September to November; when planted in a narrow border near a greenhouse wall, this Nerine produces a fine display. Nerine Bowdenii is equally serviceable as a pot plant for greenhouse and conservatory decoration.

Original Drawings of the "Botanical Magazine."—The large number of original drawings of the plates published in the *Botanical Magazine* included in the collection of drawings in the Herbarium at Kew, has been supplemented by one hundred and sixty-five drawings, mainly belonging to the period between August, 1830, and August, 1834, through the generosity of Mr. W. A. Bilney. Mr. Bilney purchased the plates in 1922, from a member of the Curtis family, and presented them to the Royal Horticultural Society, and the Council of that Society has, with Mr. Bilney's sanction, generously transferred them to Kew. The Kew collection includes the whole of the original drawings since 1841, principally the works of Mr. W. H. Fitch and Miss M. Smith.

Fruit Industry of South Africa.—According to the *Journal* of the Department of Agriculture of the Union of South Africa, the fruit industry in the Union is making rapid progress. In the principal fruit-growing districts the number of Apricot trees in 1921 had increased by 37.5 per cent., Plum and Prune trees by 34.9 per cent., Pear trees by 12.1 per cent., Oranges by 8.2 per cent., Naartjes by 8.1 per cent., and Apples by 6 per cent.

Challenge Cup at Wolverhampton Floral Fete.—The Secretary of the Wolverhampton Floral Fête, Mr. G. W. Martin, informs us that the Leamington and County Flower Show has offered its handsome, fifty-guinea, silver Challenge cup for the best non-competitive group exhibited at Wolverhampton on July 10. The Cup will become the property of any exhibitor winning it three times in succession, or four times in all. Messrs. Webb and Sons won it at Leamington in 1910, Messrs. Sutton and Sons in 1911, Messrs. J. Peed and Son in 1912, Messrs. H. Lane and Sons in 1913, and Messrs. R. Wallace and Co. in 1914. Credit for their successes at Leamington will be accorded these firms should they be successful at Wolverhampton.

Bark Cloth.—In an article entitled "A Revision of Brachystegia," published in the *Kew Bulletin*, the authors, Mr. J. Burtt Davy and Mr. J. Hutchinson, describe the method of preparing bark cloth by the natives in Angola from fibrous sheets beaten out of the bark of several species of Brachystegia, Berlinia, and a species of Ficus (F. natalensis). The bark used is the inner or second bark of the tree, and the strips of bark, which are some four to six feet long, are placed on a log with a flattened surface and beaten with a mallet to the thickness of strong brown paper. A strip of bark of the size mentioned is beaten out until it is about six feet long and four feet wide. It is then spread out in the sun to dry, and the exposure to light gives the upper surface a tint somewhat like terracotta. The fabric is then stitched together with strips of fibre from dried Plantain stems. The bark of certain species of Brachystegia is also a valuable source of fibre for the manufacture of rope, cord, string, thread, game-nets, snares, fishing lines, sacks, grain bags, etc. The twine is quickly prepared by rubbing between the palms of the hands.

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[*] *The Fundamentals of Fruit Production.* By Victor ral Gardner, Frederick Charles Bradford and Henry ggett Hooker, Jr., of the Department of Horti- ture, University of Missouri. Pp. 667. McGraw l Publishing Co., 6, Bouverie Street, E.C.4. Price 6d. net.

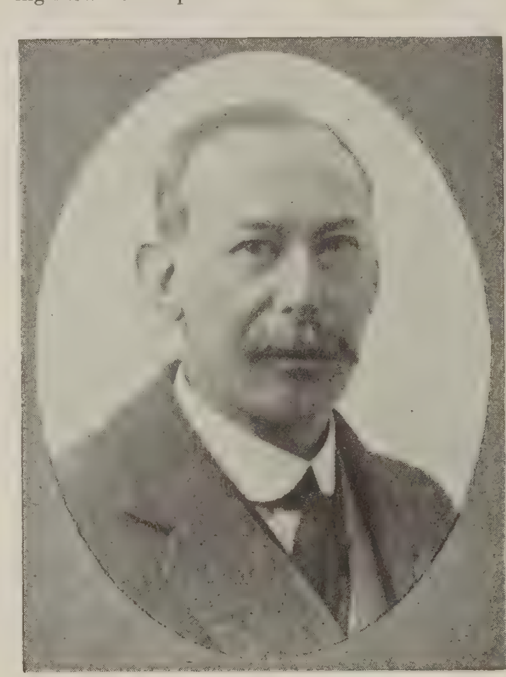
Illness of Mr. David King.—We very much regret to learn that Mr. David King, Osborne Nurseries, Edinburgh, one of the best-known horticulturists in the south of Scotland, is suffering from a severe illness, and his many friends will be pained to learn that there is a danger that the illness may leave him totally blind.

Proposed Forestry Chair at Aberdeen.—The proposal that the Aberdeen University Authorities should establish a Chair of Forestry at Aberdeen has a keen supporter in Mr. Donald Munro, O.B.E., of Banchory, Kincardineshire, whose work in the supplying of timber and in other directions during the war worthily earned for him his distinction. Mr. Munro asserts that there is no better centre in Scotland for the study of forestry than Aberdeen; the only other two centres with Universities are Glasgow and Edinburgh. The Edinburgh students have to make elaborate arrangements for a stay in a part of the country which is three hours' journey from their University. The Glasgow students can get nothing suitable nearer than Argyllshire, about the same distance away; whereas the Aberdeen students would have forestry in all its branches at Craibstone, or practically at their door. They could on occasions visit woods and forests for planting, felling, saw-milling and nursery experience in the morning, and return in the evening. There are many fine forests on Deeside and Donside, many estates and commercial nurseries are near at hand, and felling goes on all the year round within a few miles of Aberdeen. Mr. Munro is convinced that only the question of finance has prevented Aberdeen from having a Chair of Forestry in the past, and it is the only reason there can be for not having one in the future. Anyone, therefore, who is prepared to help will be conferring for all time a benefit on the young men of the north of Scotland and on the empire as a whole.

Linnean Society.—At the annual meeting of the Linnean Society held at Burlington House on Thursday, the 24th ult., Dr. A. B. Rendle, F.R.S., was elected President for the ensuing year, and Dr. B. Daydon Jackson was, for the forty-third time, re-elected one of the secretaries. The Gold Medal of the Society was awarded to Mr. T. Cheesman, F.Z.S., curator of the Auckland Museum, New Zealand, for distinguished services to New Zealand Botany.

Destruction of Ants.—Ants are at times a very great pest in greenhouses, and the following method of destroying them, recommended by Mr. W. B. Gurney, Assistant Entomologist of the Agricultural Department of New South Wales, may be of interest to our readers. A bait is made with 9 lb. of sugar, 9 pints of water, 6 grams of crystallised tartaric acid, 8.4 grams of benzoate of soda, 15 grams of sodium arsenite (or 25 grams of commercial sodium arsenite) and 1¼ lb. of honey. All the ingredients, except the sodium arsenite and the honey, should be boiled together slowly for thirty minutes and allowed to cool. The sodium arsenite is dissolved in half a pint of hot water, allowed to cool, and subsequently added to the cool sugar syrup, and the whole well stirred. The honey is added last, and the bait mixed thoroughly. Mr. Gurney placed the bait in small tins with the lids fitted on to keep out dust and rain, but with the sides of the tins bent inwards to form openings that allowed the ants ready access to the poison. Each tin was furnished with about four ounces of the bait, a quantity that lasts for about a month without fermenting. Sufficient rag or sponge to absorb practically all the bait was put into the tin so that the ants could obtain a foothold and feed on the bait in large numbers. The value of this bait lies in its slow action, as the poison permits the ants to return again and again before they are killed, thus allowing time for them to carry some of the bait to the larvae and queens in the nests.

Mr. J. Masters Hillier.—It is with great pleasure we publish the portrait of Mr. J. Masters Hillier, keeper of the museums at the Royal Botanic Gardens, Kew, which post he has held since the retirement of Mr. J. R. Jackson in 1901. Mr. Hillier was born at Teddington, and after leaving school served for a short period with a firm of auctioneers and estate agents at Kingston, and afterwards at the Kew Observatory. He entered service at Kew on December 7, 1879, as assistant to Mr. J. R. Jackson, and he has the interesting experience of having been continuously in employment, without even a day's break, since leaving school. Since entering Kew he has passed two civil service examinations, which is probably unique for a member of the Kew staff. It will be readily understood that Mr. Hillier has a unique knowledge of economic botany, and is a most interesting and instructive lecturer on this subject to the young men at Kew. Mr. Hillier has a wide reputation in Middlesex as a vocalist, and was for sixteen years a chorister in the Royal Choral Society. He is a keen gardener, and another of his hobbies is fishing. Having taken a keen interest in Kew men for over forty years, they in turn have shown their appreciation of his services by electing him to the presidency of the Kew Guild. Mr. Hillier's only son, Gerald, is also an old Kewite and at present Assistant Editor of *The Garden.*



MR. J. MASTERS HILLIER.

The late Mr. H. J. Elwes.—The late Mr. H. J. Elwes, of Colesborne Park, Gloucester, who died on November 26 last, left unsettled property to the gross value of £66,318, with net personalty £64,429. He left to the Royal Gardens, Kew, any living plants from his collection which may be required by the director of those gardens. He also directed that a sum not exceeding £2,000 be expended on the publication of a book or books founded on his journals relating to his travels and researches in botany, horticulture, ornithology, entomology and natural history, as arranged with his friends Sir Frederick Moore, and Mr. T. A. G. Strickland. He also bequeathed £200 and books to the value
of £50 from his entomological library to h
secretary, Mr. James Edwards, if still in h
service, as a mark of gratitude for his long an
faithful services.

A Prolific Pea.—Experiments conducted b
Mr. J. M. Pitt, Senior Agricultural Instructo
New South Wales, proved that of nine varieti
of Peas tested, much the largest yield was o
tained from a variety named Greenfeast. It
stated to be a narrow-podded variety with po
well and tightly filled and having a decide
bend back. The pods are said to contain eig
to ten peas of even size. The yield of bushe
per acre was 514, compared with the next be
cropper, Senator, which produced 420 bushels p
acre. The yields of seven other sorts tested were
William Hurst, 377 bushels; Richard Seddo
351; Hundredfold, 351; Yorkshire Hero, 34
Daisy, 334; English Wonder, 291; and Strat
gem, 257 bushels. In addition to this extrao
dinary yield the weight of the Peas in pod to
given measure were in the following rati
Greenfeast, 38 lb.; Senator, 33 lb.; Willia
Hurst, 35 lb.; Richard Seddon, 34 lb.; Hundre
fold, 33 lb.; Yorkshire Hero, 32 lb.; Dais
32 lb.; English Wonder, 34 lb.; and Stratage
30 lb. It is stated that Greenfeast matured
least a fortnight earlier than Yorkshire Her
the variety most commonly grown in New Sou
Wales.

Appointments for the Ensuing Week.—Sunda
June 3: Wakefield Tulip Society's meetin
Tuesday, June 5: Sevenoaks Gardeners' Chry
anthemum Society's meeting; Royal Caledoni
Horticultural Society's meeting. Wednesda
June 6: Lewes and District Horticultur
Society's meeting. Thursday, June 7: Ma
chester and North of England Orchid Societ
meeting.

**"Gardeners' Chronicle" Seventy-five Yea
Ago.**—*Horticultural Exhibition at Chiswi*
Those who had the good fortune to be prese
at the first great meeting of the season in t
Garden of the Horticultural Society will agr
with us that there never before was witness
such a display of perfect gardening. The on
exception was the Pine-apples, some of whi
were miserable things. Foreigners, of who
there were many, must have looked wi
astonishment at the trifles which they le
behind them, and must have discovered
Chiswick another striking proof of what ma
be done by energy and skill in a country whe
men prefer actions to words, and industrio
employment to political *fêtes* and disorder
attroupements. The weather was doubtf
but it did not prevent 3,238 visitors fro
joining the scene, of whom a larger proporti
than is usual, even in May, consisted
personages of rank and distinction. We ha
called this exhibition the first on two ground
not merely because it was the first of the yea
but because upon the whole it was the first
merit of all that the Horticultural Society h
witnessed during so many previous years.
can now say, what we were never able
assert before, that every exhibitor, exce
some of those of Pine-apples, would ha
merited a prize and it becomes a real subje
of regret that the principle of competition
which these shows are founded, and the i
dispensable limitation of prizes at them, shou
render a universal distribution of honours i
possible. What the Horticultural Socie
cannot do, we have, however, endeavoured
effect through our reporter, by whom t
merits of the non-winners have, we trust, be
duly cared for. Azaleas, of course, formed t
most striking feature; their gay colours a
large flowers, together with the admirab
skill exerted in producing them, always secu
them the first place in a May exhibition. T
Orchids, however, with their infinite varie
of forms, their grace and fragrance, present
most attraction to the critical observer.
was satisfactory, too, to observe how great
advance in cultivating them has been made
some of the younger gardeners, who ha
hitherto imagined it impossible to contend su
cessfully with the more experienced growe
Gard. Chron., May 27, 1848

CIMEN PLANTS FOR THE FLOWER GARDEN.

.THOUGH tall specimen plants are not grown
he same extent as formerly they add a
nctive feature to the flower garden during
ummer.

largoniums lend themselves readily to this
ose. Paul Crampel, the popular scarlet
er Geranium, has the necessary vigour to
e a fine standard, while the various scented-
ed Pelargoniums, of which Clorinda is a
example of those cultivated for their
ers, may all be grown to a large size, either
ushes or standards. The Ivy-leaved Pelar-
um, Madame Crousse, is another old
urite, and very floriferous.

arguerites are so common as bushes that
adaptability to the standard form of train-
is often overlooked. Cuttings should be
ed in late summer, and the plants grown on
lily through the winter. The Heliotrope is
her useful subject for training as tall
dards, or very large bushes, and in either
few pass them by without pausing to
eciate the fragrant flowers. The plants
lop rapidly, and neat specimens may be
ined in a year from cuttings or seed.
nica Andersonii also makes a noble plant,
it associates well with Marguerites or Pelar-
ums, and, being practically hardy, is easily
ered.

lceolaria amplexicaulis well repays for the
ble of training it as neat little standards
otting over the surface of a suitable carpet
. The cuttings may be rooted in the ordi-
way in a cold frame, and the plants potted
ebruary, subsequently growing them in
l house.

here a genial spot can be found for Brug-
ias, few standard plants of this type equal
. Year-old stock raised from cuttings rooted
ring make fair-sized heads. The pretty blue
rs of Plumbago capensis are invariably
red, and the white form alba is worthy
ce in the summer flower garden. They are
growers, and cuttings rooted in spring
fine plants suitable for growing in tubs
ar hence. Aloysia citriodora is rarely out
ace, for no plant lends itself more readily
ecimen culture, and its sweet-scented foliage
ways appreciated.

chsias may be grown into handsome plants,
in a variety of forms, by careful attention
nnual repotting in spring. Lantanas, and
brilliant orange-flowered Streptosolen
sonii, may both be trained as tall speci-
for use as dot plants.

though Hydrangeas bloom rather early in
ner, they can scarcely be overlooked, for
blue forms are especially to be admired.
e plants can hardly be fed too liberally
root-bound. For its effect about August,
anthus umbellatus in ornamental tubs is
ly of note. When well established this
ous plant blooms very freely, always pro-
l its treatment is on a liberal scale.

panese Liliums of comparative dwarf habit
as L. speciosum Melpomene, roseum, and
um, are also very ornamental in receptacles
ble of holding six to nine bulbs, and they
be timed to bloom any time between July
October, by affording them indoor treatment,
lacing them in a shady corner to retard
, as the case may be. Space, when potting
Lilies, should be left for future top
ings.

rly-flowering Chrysanthemums need no
nmendation for autumn blooming in the
en, but their value in large pots and tubs
ves attention. It is, however, the later
ering kinds, including the Masse family and
ce Martin, which do the best. Earlier
are, generally speaking, too restricted in
to look well in pots. These plants should
ell cultivated from the cutting stage, other-
they may lose their lower leaves, and
them considerable value in appearance.
should be grown as hardily as possible, but
ed in regard to intermediate stages of
ng on the same lines as indoor Chrysanthe-
s. *Y. G.*

NOTES FROM WISLEY.

IN spite of sharp frosts and heavy rains, Azaleas and Rhododendrons were making a brave show in May. Among the latter, many beautiful species were in bloom, such as the white-flowered R. decorum. This is not completely hardy, and although placed in a sheltered position, lost a number of its flower buds. R. Soulei is a similarly flowered shrub, the blossoms of which are bright pink in bud. Other noteworthy species in bloom were R. Augustinii, with fine blue flowers, and R. oreotrephes with flowers of a rosy lilac hue and bearing a red style. The underside of the leaves is glaucous.

That indispensable shrub Berberis stenophylla, which has been flowering for some time, is now beginning to rain down its golden petals. Several varieties are to be observed in the gardens, one of the most distinct being B. stenophylla coccinea, with scarlet sepals and flower stalks, these giving the plant the appearance of B. Darwinii. B. stenophylla gracilis compacta has stems overcrowded with leaves, and B. s. gracilis glauca carries a slight bloom on its foliage.

Numbers of interesting plants are to be found in the rock garden. Cerinthe aspera, an annual of doubtful hardiness, has withstood several severe frosts, and has been flowering for over a month. The plant is glaucous, and reminiscent of a Euphorbia, but the flowers are tubular, with the upper half of the corolla deep chocolate, and the lower half yellow, the colours being sharply divided. The leaves immediately surrounding the flowers are blue at the base, merging into purple.

Quite a number of varieties of the common Bugle (Ajuga reptans), spreading themselves along the sides of the walks, are sending up their spikes. There is A. r. atropurpurea, with deep red foliage; a variety with variegated foliage, which goes well with the blue flowers; A. r. alba, with white flowers; and a pink-flowered form. Ajuga Brockbankii has flowers of a more brilliant blue than A. reptans, and its foliage is of a fresher green.

Some of the finest blue shades are seen in members of the Borage family, to which belongs the intensely blue-flowered Mertensia echioides, which is slowly recovering from the drought of 1921, when it was nearly killed. A fairly near relative is Onosma albo-roseum, which is earlier and less familiar than the yellow O. tauricum. The flowers open pure white, change to a clear pink and pale off from purple to blue.

A handsome Speedwell is Veronica gentianoides, which carries spikes, 12 inches to 15 inches high, of large, pale blue flowers. A dwarfer and greyish-white leaved species is V. cinerea. The petals are bright blue on opening, with a lavender reverse which gives the general colour.

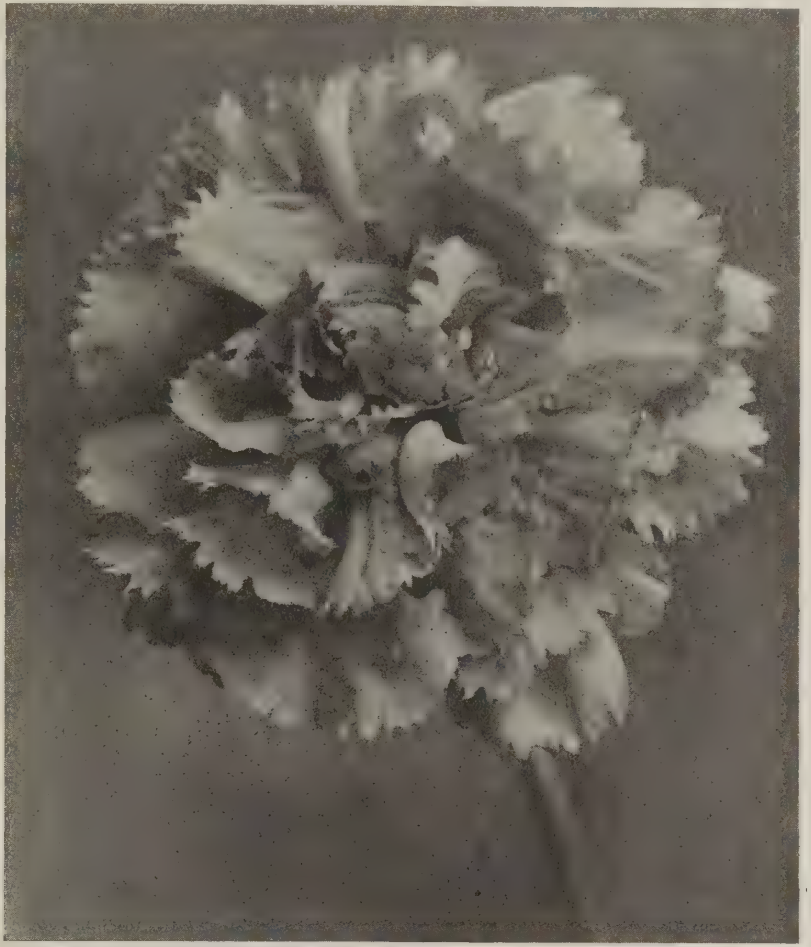


FIG. 139.—CARNATION EILEEN LOW; EXHIBITED AT THE CHELSEA SHOW BY MESSRS. STUART LOW AND CO. (SEE PAGE 309.)

The pale pink flowers of V. Lavaudiana, a prostrate sub-shrub, are also conspicuous. The leaves are fleshy and have a red margin. Near by is the showy, double-flowered Meadow Saxifrage (S. granulata), the single form of which may be found growing wild within a few miles of the gardens.

Around the pool, Iris sibirica × orientalis and Primula pulverulenta are making splashes of rich colouring. A fiery orange flower is the result of a cross between P. pulverulenta and P. Cockburniana. Fronds of the Royal Fern are unfolding, and at this stage are of a pleasant bronze colour. The Gunneras have sent up their brush-like inflorescences, and are beginning to spread out their gigantic leaves, while the river is decked with multitudinous flowers of Ranunculus fluitans.

It is gratifying to know that the Oak trees at Wisley are exceptionally free from Tortrix viridana, although they have suffered badly from this pest in the past. *J. E. G. White.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Stanhopea.—The Stanhopeas produce quaint and attractive flowers, and when in bloom are very interesting. Their flowers are produced in a distinct manner, as the pendulous inflorescences grow downwards through the bottom of the receptacles in which the plants are grown, therefore it is necessary to grow them in baskets suspended from the roof rafters. A layer of Fern rhizomes should be placed in the bottom of the receptacles to prevent the compost being washed through the bottom when dipping the plants, and it should be arranged in such a manner that the inflorescences can easily grow through. Such species as S. tigrina and its variety superba, S. Amesiana, S. Wardii, S. nigroviolacea, and others are becoming active at the roots, and any that require fresh rooting material should have attention as soon as it is seen that root action has begun. Stanhopeas resent frequent root disturbance, therefore sufficient accommodation to last the plants for two seasons should be given them; at the same time, should the compost be in a sour, decomposed state, it should be renewed. When placing the plants in fresh baskets, all the old decomposed material should be removed, and the fresh compost worked carefully around them, making the whole moderately firm. A suitable compost consists of equal parts of clean fibre, either Osmunda, or A1 fibre, and Sphagnum-moss, incorporated with broken crocks. These plants do well in a moist position in a warm, intermediate temperature, and their flowers, although of short duration, are attractive and interesting. Water should be supplied the roots sparingly during the early stages of growth, as the young growths are liable to damp off if moisture is given in excess, but when the new pseudo-bulbs begin to form, it should be afforded liberally. The leathery leaves are subject to attacks of red spider, hence the necessity of frequently spraying the foliage underneath as well as overhead.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill Ampthill Park, Ampthill, Bedfordshire.

Climbing Plants.—The new growths of climbers must be trained apart to prevent them becoming entangled. In the case of Roses on arches or pillars close tying is not advised, as the shoots will need pruning next autumn. Rather loop in the growths so that they will not obstruct passers by. Clematis shoots soon become entwined one with the other, and, being brittle, are easily broken when allowed to get in a tangled condition.

Pheasant's Eye Narcissus.—This member of the Narcissus family is one of the most beautiful for naturalising in grassland partially shaded by trees. Under such conditions it does splendidly here, and we have now, mid-May, a good display, though some of the blooms are past their best. Where spare grassland is a matter for consideration an economical and practical arrangement is secured by planting an early flowering Daffodil in the same ground as the above late bloomer—thus getting two effects in the one position. Being sweetly scented, Narcissus poeticus recurvus is a great favourite and much sought after for indoor decoration.

Pyrethrums.—The buds of these plants are well advanced, and the plants will be much benefited by a mulch of old manure. On light soil watering may be necessary in dry weather. For supplying cut blooms both the single and double forms of this plant are exceedingly valuable. Some growers advise treating the Pyrethrum generously after flowering in order to cause new growths to develop, with a view to securing another crop of bloom in the autumn.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Broad Beans.—Seedling Broad Beans raised in boxes and afterwards planted out are growing freely. The plants will be greatly benefited in dry weather by a mulch of half-decayed manure. Keep the growths upright by staking the rows with light Pea sticks, or place stakes along the rows at intervals of about 2 yards to carry a line of string. Water this crop copiously if the ground is light, and dry weather prevails

Peas.—Dwarf Peas growing on south borders are making good growth, and should be assisted by hoeing the soil frequently and watering the roots when they are dry. Tall varieties that have been staked should be mulched with half-rotted manure and well watered at the same time if necessary. Others should be staked as they need it. A liberal dusting of the soil with wood ash during showery weather is very helpful to the plants.

Cucumbers.—Plants growing in houses should be assisted with top dressings of rich soil, and the growths kept thinned to prevent overcrowding of the shoots. Do not allow the fruits to hang on the plants for too long; rather cut them and place the ends in water, when they will keep fresh in a cool place. Surplus plants may be used for growing in frames on hotbeds. If the beds are re-lined with fresh fermenting material, and the frames kept close and shaded from bright sunshine, these frame plants will furnish plenty of fresh young Cucumbers. The roots should be supplied with plenty of water, and the shoots kept well thinned.

Broccoli.—Seedling Broccoli raised from seed sown early and pricked out in March should now be planted in strong, rich soil in an open position. Plant in rows made two feet apart, and the same distance from plant to plant in the rows. Use a trowel for the work, and place the roots well down in the soil. If slugs are troublesome, place a small quantity of cinder ashes around each plant. Water the roots freely in dry weather and, if drought is continuous, mulch the plants with half-rotted manure. Make another sowing of late varieties to follow those already sown. Clear away old stumps as fast as the heads are cut. Broccoli matured very quickly this spring, doubtless owing to the mild winter and the warm weather early in May.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Bougainvillea.—Specimens of this showy flowering plant growing in beds or borders and trained on pillars or rafters, are developing new shoots freely, and should have all the weak growths removed. In the case of old plants this attention is very necessary, as they soon become overcrowded with growths. The shoots retained should be so disposed that they are freely exposed to light and air, as this is very essential to successful flowering. This attention should also be given to pot plants. The Bougainvillea is easily increased by means of cuttings formed of half-ripened shoots of the smaller, twiggy growths. Plunge the cutting pots in a warm propagating case. The beautiful new variety Mrs. Butt is easily increased in the same way, but is much later in starting into growth than the other species and varieties. It is very free-flowering, young plants in large 60-sized pots or 48-sized pots producing flowers. Plants shown at exhibitions have always the appearance of being grown in too much warmth, as the flowers always flag. This should not happen, as in my experience the Bougainvillea succeeds quite well in an ordinary greenhouse.

Cyclamen.—The earliest plants of Cyclamens should be ready for placing in their flowering pots. Use a good medium loam, to which a little leaf-mould is added, and as these plants enjoy lime in some form, old mortar rubble may be used in place of sand. During the summer they should be grown in low pits or cold frames; they grow best in cool and fairly moist conditions.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Woolverstone Park Gardens, Ipswich.

Planting Young Vines.—The end of the sent and early part of next month are sui for the planting of vines raised from eyes in the present year. For the first year a b 4 feet wide and 2 feet to 2½ feet deep, laying thorough drainage, will suffice. Pre to planting the vines the border should be warmed by sunshine, maintaining a high perature in the house to assist in that pur Do not practise deep planting; spread the evenly, and cover them with some of the of the compost. Provided the soil is moder moist water will not be required for se days. Maintain a close, moist atmospher a short period until the vines recover from root disturbance. For a short time the should be lightly shaded during bright wea and the vines damped occasionally by mea the syringe.

Young Vines.—Vines raised from eyes year will be ready for shifting into larger If the vines are to be permanently planted spring, pots 9 inches in diameter wil large enough, and the same sized recept will be suitable for those to be cut back autumn and grown on another year for fru in pots. A mixture of roughly broken loam of good quality, bone meal, old lime ru and burnt refuse makes a suitable potting post. The pots should be quite clean, and cr carefully, as good drainage is essential. potting, the compost should be made moder firm; the soil should be in a suitable condi neither too wet nor too dry. For plantin inarching purposes, very large pots are desirable. The present season is most sui for the operation of inarching; the current son's wood makes the best union. The pr consists in taking a slice of about equal le and depth from both shoots, and binding together so that the cambium on each unites on one side at least. In the warm, condition of a vinery the stems soon unite, it is remarkable how quickly and strongly inarched shoot grows.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Har King's Walden Bury, Hitchin, Hertfordshire.

General Remarks.—From now onwards careful grower is the more watchful for thing that may harm his crops. The rav of caterpillar may be more serious in localities than others. The effect of the c moth grub must be watched for. Timely moval of a few attacked fruits in the stage may save a good deal of harm later. the infected fruits swell, they will drop, such should be collected and burnt wit delay. The constant drying winds will its effect on the trees. The rapid evapora both from the soil and leaves, will ten harden the tissue too quickly; the fruit to swell and will drop. Trees on high gro on south walls, and places particularly posed to drying conditions should be wate Provided the water is not obtained direct a cold source, an occasional spraying will the swelling of the fruit. At the momen writing it is too early to hazard a fore of the fruit crop, but thick clusters of Ap have set. Plums have remained at a stage so long that the effects of the wi conditions are likely to leave their mark on crop. Continue to train trees as they deve especially those planted to cover perg Late-planted trees should have had their sh shortened by this time. Growth rather fruit should be encouraged on such trees. laterals of Red Currants and Gooseber should now have been stopped at the first second leaf. Remove lower growths in o to secure a good stem on standards, other fruit lowered by its own weight will come soiled by close proximity to the grou Branches of Gooseberries attacked by " back " should be removed and burnt. Litte some kind, preferably clean straw, should arranged carefully about Strawberry plants.

GARDEN SUBSTITUTE FOR FARMYARD MANURE.

(Continued from page 291.)

HAVING established the importance of humus a fertilising agent, it is necessary to inquire to the natural supply of this substance in e soils with which we have to deal. Generally eaking, it may be stated that the fibrous ams and peats are the richest in humus, and e light, sandy soils most deficient; while the pply of humus to the latter is vital, it is not ie to neglect indefinitely the maintenance of e supply in the case of the former.

Humus disappears from the soil as the result various processes. It is washed out by phy- al action, and as a catalytic agent; although theory the process is continuous, in practice e agent disappears. It is also destroyed by rious subsidiary chemical reactions.

From a consideration of these facts one is rced to the inevitable conclusion that if the tility of our soils is not to decrease steadily substitute for farmyard manure must be und.

In looking round for such a substitute it is sential in the first place to have a correct a of what farmyard manure really is. It is, course, the waste solid or liquid products of imals, mixed in most cases with a certain ount of litter used for bedding. Incidentally, should be stated that the litter is valuable for sorbing the liquid excreta, as without this most valuable part of the waste products is quently washed down the drains and lost. e raw material from which these waste pro- cts are directly or indirectly derived is invari- y vegetable matter. The processes of digestion d assimilation of food in the animal system promoted by ferments called enzymes, and viously if we can cause vegetable matter to dergo similar processes independent of the imal, we are in a fair way to provide a sub- tute for farmyard manure. Not only so, but substitute will be better than the original.

n the case of farmyard manure all the most uable constituents have been extracted to ovide the growth and energy of the animal. the case of the substitute, however, the ole of the constituents will be present, and, the process is successful, in a readily assimil- e form. Hence our aim must be to promote decay of vegetable matter in such a manner t a product similar to farmyard manure is oduced, but with all the most valuable con- uents retained.

The value of plant tissue as a means of enrich- soils with organic matter has long been ognised, as shown by the fact that all up- date farmers and market gardeners use every ourable opportunity of sowing catch-crops of quick-growing nature, and turning them in ore the sowing of the next crop. This tem of green-manuring has been developed to high degree in certain districts, notably on poor, light soils of Suffolk, where farming uld hardly pay at all but for a special rota- n, in which the whole or a large part of one wing season is given up to the green manure p. In Germany, also, large tracts of barren, dy heath have been converted to fertile as by the use of green manures.

The catch-crops most suitable for growing to n in as green manure depend somewhat on district, and the rotation of regular crops. widespread use of Mustard is due to its id growth, and probably no crop gives such a k of material in so short a time. If sown August, or even so late as early September, full crop is produced for turning in by vember, and it should not be left later than , or frost may partially destroy it. Other ps which usually do well and give a good y of green stuff by the end of the autumn Rye and Buckwheat, the latter being parti- rly suitable for light soils.

Where the ground for the following crops is wanted until the spring, the catch-crop be grown on until February, and in this Vetches, Red Clover, Winter Beans, Swedes Turnips may be used. *W. Auton.*

(To be continued.)

PLANT NOTES.

NOMOCHARIS PARDANTHINA.

NOMOCHARIS PARDANTHINA FARRERI is undoubtedly one of the most charming of hardy Liliaceous plants introduced by the late Mr. R. Farrer from Yunnan. The delicate pastel colouring of the graceful, drooping, bell-shaped flowers is all that could be desired in any flower. This beautiful plant has been flowering at Messrs. Perry's nursery, Enfield, for the past few weeks; the slender stems rise to a height of from 15 inches to 18 inches, and bear from two to five flowers each. The plant is of Lily-like habit. The outer parts of the flowers are of the most delicate shell-pink, while the inner portion is snow-white, margined or suffused with soft shell-pink, with a central spotting of rich crimson. The flowers may very favourably be compared to many of the daintiest of Odontoglossums. A partially shaded position and a compost of loam and leaf-mould suits the plant. *W. L.*

SOLANUM WENDLANDII OUT-OF-DOORS.

REFERRING to the notice of Solanum Wendlandii in *The Gardeners' Chronicle* of May 19 (p. 272), I suggest to would-be growers of this beautiful flower that very satisfactory results may be obtained by planting it inside, in the corner of a greenhouse, and, when 4 ft. or 5 ft. high, passing the stem through a little hole cut in the woodwork or glass, and training it on a wall outside. I once saw a wonderful bed of Solanum Wendlandii in full bloom in a garden at Johannesburg, and was so impressed with it that I made the above experiment on returning to Sussex, after failing to grow it out-of-doors. An unheated house affords the plant sufficient protection in winter. *A. M. Godman, South Lodge, Horsham.*

THE FERNERY.

ONOCLEA SENSIBILIS.

AMONG the many good, hardy, garden Ferns native of North America Onoclea sensibilis, the Sensitive Fern, must be considered one of the most desirable. This species is quite hardy and will succeed in any cool soil containing humus, in shade or partial sunshine. It is, however, not very particular, and in most gardens will cover a considerable space, sending out underground rhizomes from which ascend the elegant fronds to a height of about one foot. In the spring these are a most delicate, almost transparent, green, which eventually changes to a pure, soft emerald green which is an uncommon shade among Ferns. Towards autumn these fronds become a warm golden buff before dying.

O. sensibilis belongs to the group known as "Flowering" Ferns, and it makes an admirable companion in the woodland for hardy Cyclamens, spring bulbs, Orchis maculata, O. foliosa and other similar subjects. *A. T. J.*

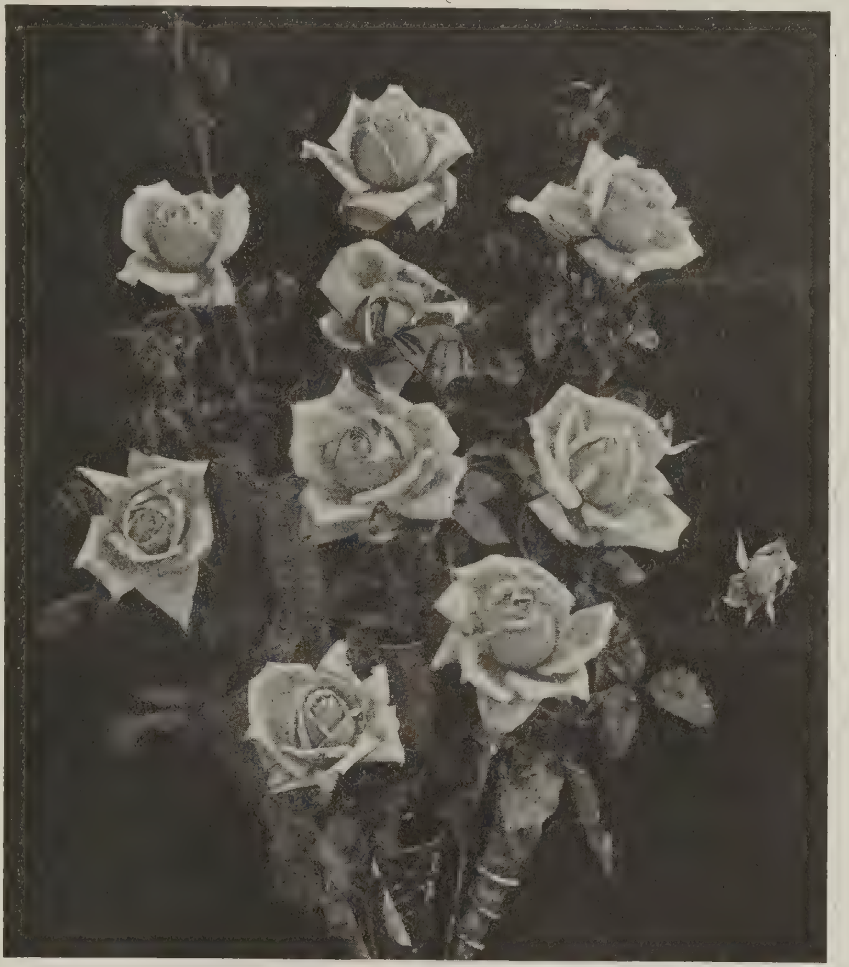


FIG. 140.—ROSE CAPT. F. S. HARVEY CANT (GOLD MEDAL N.R.S. JULY 11, 1922). R.H.S. AWARD OF MERIT, MAY 29 EXHIBITED AT THE CHELSEA SHOW BY MESSRS. FRANK CANT AND CO.

THE ALPINE GARDEN.

VIOLA ALANNAH.

THIS bright little Violet is in flower and is a good and pleasing plant for the rock garden or the front of the hardy flower border. It was raised, I understand, at Lissadell, and is a hybrid between V. bosniaca and V. cornuta. It seems to derive its colour mainly from the former and its larger size from the latter parent.

I have seen the colour described as dark lilac-purple with a golden eye, but the flower is lighter than this would convey, and might almost be called deep pink with a purplish shade, rather deeper than the tint of V. bosniaca. *S. Arnott.*

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 15.—The Pi-tu La.

FROM Le-gong we proceeded in a south-westerly direction by the main road into Tibet, travelling so far as the pass, which is the provisional frontier. Our road led down the valley by the Damyon stream, which after a few miles turns east to join the Mekong; crossing it, we followed up another stream. There is no tree growth down below, but by the stream itself are thickets and tangles, mostly of one or two species, with masses of straw-yellow Clematis—the one with the upturned thimble flowers. On the stony slopes above are the usual dwarf shrubs, Ceratostigmas now being particularly blue.

On September 7 we began the ascent to the pass, and were soon in the forest again—Pine trees and Oaks below. We saw no Pines in the Damyon valley, and their sudden reappearance was rather startling.

There were very few flowers, of course, and fruits were difficult to obtain. I collected a certain amount of seed of the Muscarioides Primula (K.W.5381). Pyrola atropurpurea was in fruit, and another dwarf species, new to me; but the seeds were not ripe.

After passing through the Pine belt we got into Rhododendron forest, where both R. argenteum and "Giant Rose" (K.W.4211) were abundant; the former was not seen in the south facing Damyon valley.

Higher up Picea began to dominate, and bush Rhododendrons replaced the trees, till, coming out into open pastures by the stream side, clumps of a dwarf Intricatum appeared. Under the Willows by the water a large Primula (probably of the Nivalis family) was scattered; seed of this was collected (K.W.5388), but it may be only P. sinoplantaginea. However, its situation in the wet river sand was a little unusual—it might account for the fact that only a small proportion of the long cylindrical capsules had any seed in them; nor was it so prolific of fruit, nor so large, as normal P. sinoplantaginea.

We pitched camp above the timber line, on the Rhododendron carpet, which, though extensive, appeared to be entirely composed of two species. However, there were other plants, and in any case the Rhododendron seeds were not ripe, so I paid scant attention to them.

Not only are Rhododendrons lacking on these dry ranges, but other Ericaceae also. There is no Enkianthus here, though it is found on the same range further south, at Ka-ga-pu; and of the little creeping plants, only two occur here, a Vaccinium with cyanide-blue "berries" now ripe, and very prominent on sheltered banks; and a Gaultheria with charming pink flowers and Heath-like foliage, or like some Cassiope. This last is found on Pai-wa-shan, as well as on Ka-ga-pu, but I believe it goes no further east. It was now in fruit and I collected some of the dust-like seed; though so late as August it was still in flower on Pai-wa-shan.

Of the Cassiopes, only C. myosuroides can withstand the long drought, the mossy leafed C. palpebrata being absent.

Scattered through the carpet of Rhododendron was a Gentian in fruit, an abundant annual species which hoists its ovary up clear of the corolla after fertilisation, the base of the ovary elongating into a stalk. Thus the fruit is rather conspicuous. It is one of the commonest alpine Gentians, occurring so far east as Mu-li. With it a small Lloydia was common.

On the highest cliffs, Aconitum Hookeri—a dwarf with large papery, pale purple flowers—was one of the very few species in flower. The rock here is porphyry, not limestone, and the flora was distinctly poor; also it survived to no great altitude, for the screes at 16,000 feet were almost bare of vegetation.

Having spent a day at the pass, collecting a few alpine plants and seed of such species as were ripe, we descended the valley on September 9; and crossing the river on the 10th reached Ya-ka-lo the same day.

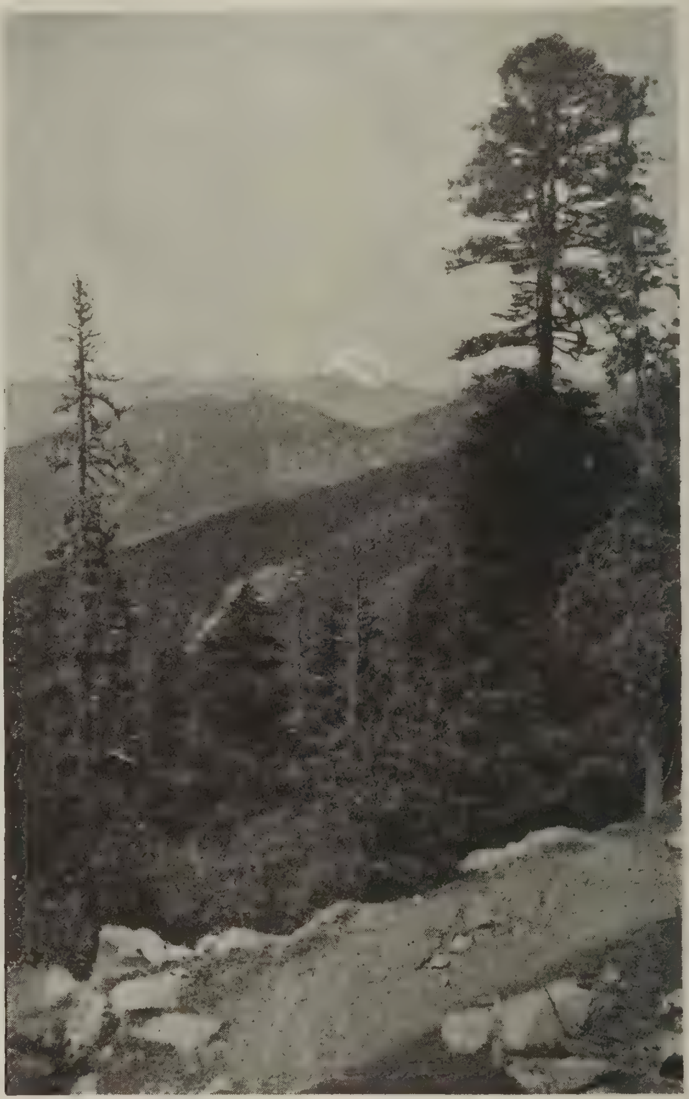


FIG. 141.—THE CUPOLA-SHAPED, SNOW-CAPPED PEAK OF DAMYON, WITH CONIFER FORESTS IN THE FOREGROUND.

The weather was very unsettled still, though the heavy rains were over; however, during our week on the Wi-chu divide, in spite of rain every day, we had had sufficient fine weather to permit of our climbing the mountains and having a decidedly interesting, if not very successful, trip. The fact is, the flora of a mountain like Damyon (Fig. 141), which has been seriously deglaciated, is not rich; the climate has been growing progressively drier, and many plants which undoubtedly grew here previously are now extinct.

We can now make a tolerably accurate division of the flora of western China into a dry Szechuan area and a moist Yunnan area. The former includes the country to north and east of the Yangtze river, and the Mekong and Salween gorges from the twenty-eighth parallel; t latter includes the rest of southern and weste Yunnan so far as the Salween river, beyo which we enter a new region altogether—t Indo-Malayan. The interesting point is t extension of the dry Szechuan flora westwards the Salween, whence it probably runs north-we conforming to the direction of the river valle in eastern Tibet. It must not, however, be su posed that the flora of Damyon is the same that of Mu-li. It is not. Most of the Damy Rhododendrons are found in the Mu-li distric but many are found in the latter distri which do not occur at Mu-li On the contrar the Primulas are quite distinct, and only one perhaps two species of Meconopsis are the sam

But though the species are different, the flo is of the same type in both regions.

How far the difference in the species is d to edaphic influence it is not easy to say; t Mu-li country is limestone and Damyon is co posed entirely of porphyritic granite, and th must affect the flora very considerably, as have already seen at Pai-wa-shan, where lim stone and porphyry on different sides of the sa valley introduce marked differences into the flor Moreover, the flora of Damyon is identical wi that of Pai-wa-shan, both being composed of t same kind of rock.

The poverty of Primulas on Damyon is n hard to understand. The range is affected the general decline in Primulas as we trav westwards, and there can be little doubt th the genus as a whole is better adapted to calcareous soil than to any other. Abutting, it does, on a region which is inimical to Primu development, Damyon suffers accordingly, thou

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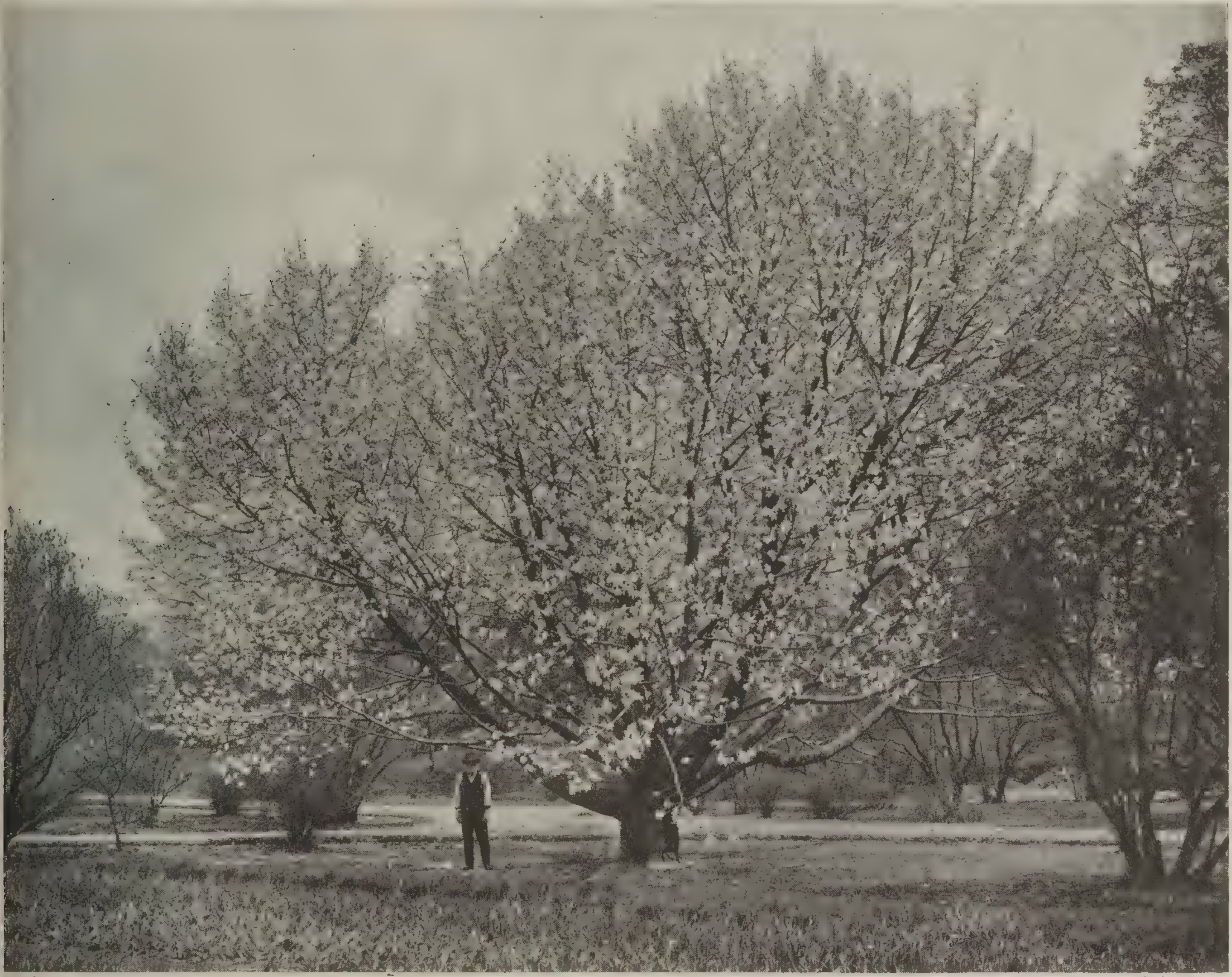
* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7, 21, and May 5, 1923.

likely enough that many other species would
w there; the fact that they do not suggests
possibility that the mountain has been
laciated within comparatively recent times.
it must be admitted that it has been hardly
lored as yet.

he following comparison is interesting. In
Mu-li Yung-lin area there are at least forty-
known species of Primula. Of these eight
ir on Damyon, or, if we include Pai-wa-shan,
teen. In addition to these, there are seven
cies found on Pai-wa-shan or Damyon (or
n), which are not known from the Mu-li area;
tal of twenty as against forty-one. Of these
nty species, six are peculiar to the Pai-wa-
n group—or rather, are not found on Dam-
, and four are found on Damyon, but not on
-wa-shan; the remainder, ten species, being
mon to both. These numbers, which, of
rse, are approximate only, illustrate the
ng off in the genus as we go westwards.

wasted no time at Ya-ka-lo, but the very
t day, September 11, started for the
angka river, following the road to Ba-t'ang—
would take me over the Mekong-Yangtze
de once more, and by a pass I had not
viously crossed. There was no time to lose.
ad now decided to make the journey to the
on river, and return to Burma by way of
head-waters of the Irrawaddy and Hkamti
g rather than go to Ba-t'ang, or come down
the old familiar road. But mid-October
ld be the latest date to which I dare delay
start, and I must hurry back to Atuntzu
prepare. *F. Kingdon Ward.*



[*Photo by G. W. Root.*

FIG. 142.—MAGNOLIA KOBUS VAR. BOREALIS IN PROF. SARGENT'S GARDEN AT HOLMLEA, BROOKLINE, MASS., U.S.A.

PLANTS NEW OR NOTEWORTHY.

MAGNOLIA KOBUS VAR. BOREALIS.*

In the garden of Professor Sargent at Brookline, Mass., U.S.A., is growing one of the first raised and probably the largest tree in cultivation of Magnolia Kobus var. borealis (Fig. 142). It was raised in the Arnold Arboretum from seeds sent from Sapporo in Hokkaido, north Japan, by Mr. William C. Clark, in 1876. It bore a few flowers for the first time in April, 1899. Each year the number has increased, and now it is one of the most free-flowering of Magnolias. The flowers are white, about half the size and less cup-shaped than those of the well-known Yulan, whilst the petals are loosely spreading and not so thick. The leaves are obovate, narrowed to the base and the twigs, like those of Magnolia salicifolia, have a spicy odour.

The variety borealis of Magnolia Kobus is the most northern of the Magnolias that flower before the leaves appear. In the moist forests of Japan from Nikko northward to central Hokkaido, it is not uncommon. In these forests it forms a tree from 50 ft. to 70 ft. tall, with a trunk from five to eight feet in girth. In the open the lower branches are apt to develop at the expense of the main stem, and give the tree a broad, irregular habit. The typical M. Kobus is found in south Japan, where it is either a large bush or a low tree with a broad bushy crown. The northern variety is a much finer and hardier garden plant. *E. H. Wilson.*

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* Sargent, *Trees and Shrubs*, II., 57 (1908).

TREES AND SHRUBS.

VARIETIES OF LAVENDER.

Varieties of Lavender are numerous, and they offer a good selection for forming edges or border-lines to flower beds or herbaceous borders. The common Lavandula spica quickly forms bushes 3 feet tall that are smothered in summer with long spikes of purple flowers and hoary, aromatic foliage.

The following varieties are, however, of much dwarfer stature, and better suited to forming edges to herbaceous borders and for planting by paths, as they have a more compact habit, and readily form neat bushes which are smothered with lavender-blue and purple flowers. These are: Lavandula spica, Bowles' variety; Early Dutch; and Middachen var., while L. s. nana atropurpurea is a pigmy form, making neat, compact bushes of silvery grey foliage, and covered in summer with slender spikes of rich purplish blue flowers. Lavandula pectinata is quite distinct from those enumerated in its dark green, deeply serrated foliage, which is highly aromatic, and its numerous close spikes of dark purple flowers. This Lavender and nana atropurpurea are admirably adapted for the rockery.

To obtain the full perfume the flower spikes should be cut while in a young stage, or just as the blossoms are opening. Lavender should be planted in light, alluvial soil, and is readily propagated from cuttings. *W. Logan. Holtwhite Avenue, Enfield.*

ROYAL HORTICULTURAL SOCIETY.

EXHIBITION AT CHELSEA.

May 29, 30, and 31.

The enthusiasm and enterprise of a host of exhibitors combined to make up a wonderful show at the Royal Hospital Gardens, Chelsea, on the above dates, but, alas, the weather on the opening day was execrable, and although it did not spoil the show it made matters most uncomfortable for visitors and exhibitors; apparently it did not affect the attendance. All around the tents, turf and soil were converted into a quagmire and the roadways were for many hours a mass of thin liquid mud, and practically impassable by ladies. Notwithstanding this unfortunate state of affairs, their Majesties the King and Queen attended early on the opening day, and were escorted through the tents and grounds by Lord Lambourne and Mr. Dykes. They appeared to be keenly interested in all they saw, as did H.R.H. the Duke of Connaught, who also was an early visitor.

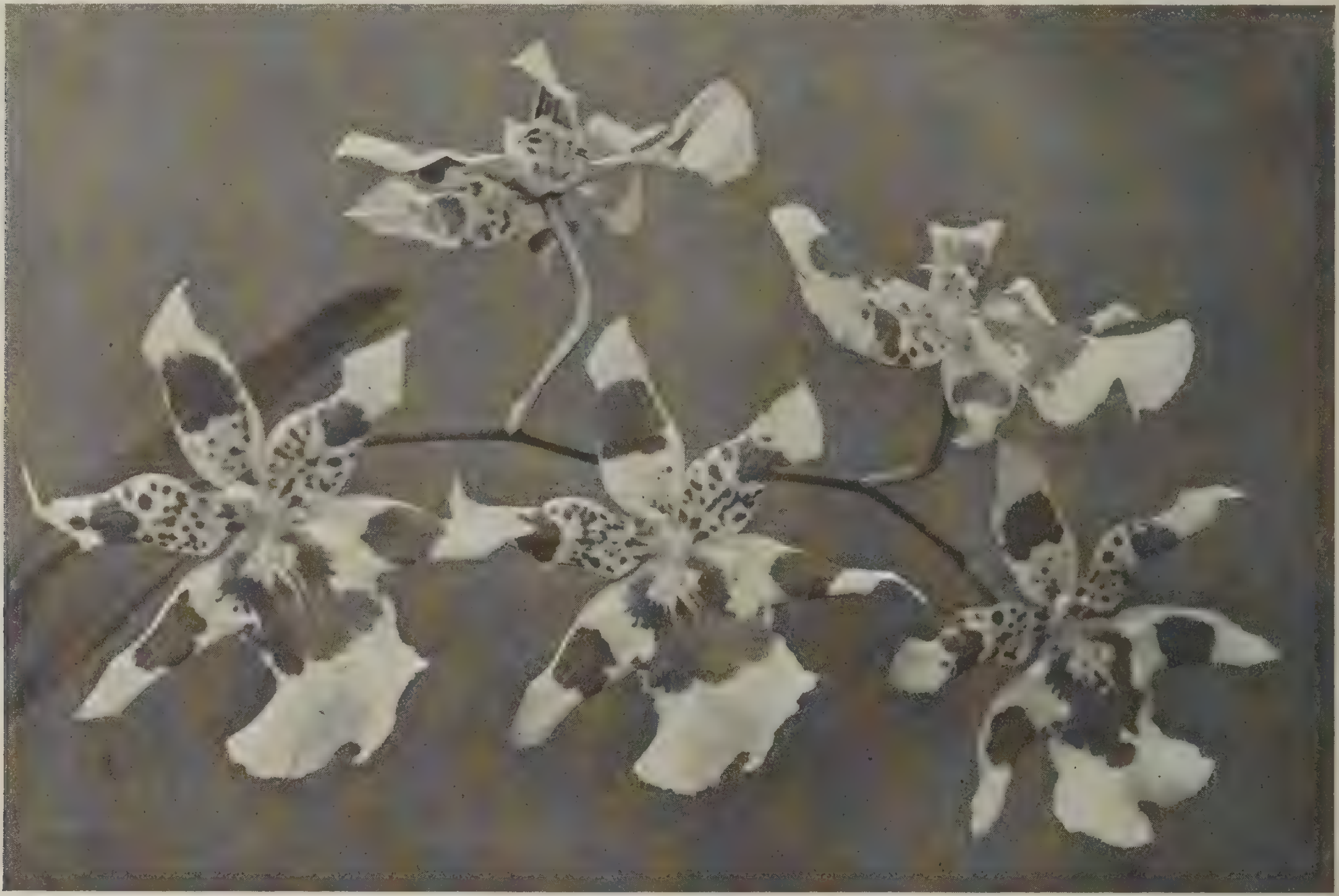


FIG. 143.—ODONTONIA OLIVIA EXHIBITED AT THE CHELSEA SHOW BY MESSRS. CHARLESWORTH AND CO. R.H.S. AWARD OF MERIT.

The judges commenced their duties at 9 a.m., and those who had to adjudicate upon the rock gardens, formal gardens, and groups of trees and shrubs arranged out of doors had an unenviable task, which, apparently, they accomplished successfully. Needless to state, the work of reporting the show was greatly impeded by the inclemency of the weather.

Taken as a whole, the Chelsea Show of 1923 was very fine, somewhat larger than its predecessors and remarkable for the wonderful colour of the exhibits under canvas. The extensive variety of subjects exhibited was also a feature of the show, whilst the novelties shown proved interesting to the large numbers of visitors who braved the elements on the opening day. In our opinion, the rock gardens as a section fell short of the glories attained in other years, while the formal gardens were not excitingly interesting; but, perchance, the weather must be held responsible for their appearance, though not for their design.

Orchids were a magnificent feature of the show, but owing to the arrangement of the groups, rendered necessary by a large tent, the effectiveness of these brilliant subjects was not so fine as in the old Temple show days; however, if effect was lost, there was nothing lacking in variety, colour and interest. Fruits and vegetables were admirably, though not extensively, shown. Roses and Sweet Peas attracted a great deal of attention, and deservedly so. The exhibits of trees and shrubs were rather better than usual, and the Azaleas were of outstanding merit.

We offer congratulations to the R.H.S. officials, who worked under great difficulties, and to exhibitors, who we hope obtained an ample reward for their labours in the form of abundant orders.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), H. G. Alexander, W. H. Hatcher, Frederick J. Hanbury, Arthur Dye, R. Brooman White, Thomas Armstrong, J. T. Barker, E. R. Ashton, Henry H. Smith, J. Cypher, J. E. Shill, Fred K. Sander, S. W. Flory, A. McBean, C. J. Lu Stuart H. Low, Richard G. Thwaites, H. Pitt, Chas. H. Curtis, and G. F. Moore.

Fifty-four specimens were submitted to Committee for awards, and a large proportio them were regarded as worthy of that tinction.

First-Class Certificates.

Dendrobium Gatton Sunray (*Dalhousiea luteum × illustre*), from Sir **Jeremiah Col** Bt. One of the most beautiful of the Ga hybrids, which had previously secured Award of Merit. The plant bore several sp of large yellow flowers with a dark blotch the lip.

Cypripedium Antinea (*Godefroyae le chilum × Lord Derby*) from Messrs. **Co and Co.**, Southgate. A really fine and disti Cypripedium with pale yellow ground col the dorsal sepal, and broad, extended pe being lined with deep claret colour; the is wholly pale yellow.

Cattleya Prince Shimadzu var. Olym (*Tityus × Hardyana*) from Messrs. **Fl and Black**, Slough. A noble flower of per form, the sepals and petals are rosy-mauve; broad front of the lip is crimson-purple, wit yellow disc.

Odontoglossum crispo-Solon var. Carma (*crispum × Solon*), from Messrs. **McBe** Cooksbridge. A superb flower, violet-pur with broad white margin.

Odontioda Radiant var. Majestic (*Chantecler × Royal Gem*), from Messrs. J. and A. McBean. A noble scarlet flower with slight white markings.

Brasso-Laelio-Cattleya Truffautiana var. Triumph, from Messrs. Stuart Low and Co. A model flower with vinous-purple front to the lip; the sepals and petals are yellow, tinged with rose.

Odontioda Duchess of York, from Messrs. Charlesworth and Co. A perfect flower of rich colour and distinct features.

Odontoglossum Serapis var. Dusky Monarch. A very fine and intensely richly coloured flower.

Odontioda Murillo. Flowers of perfect form and fine colour. Both these were shown by Messrs. Cowan and Co.

Odontoglossum Llewellyn var. Colossum, from Messrs. Charlesworth and Co.

Cymbidium Castor var. Laburnum, from Pantia Ralli, Esq. A distinct form with flowers of good shape, coloured pale yellow, with a red zone on the lip.

Cattleya Irene var. Our Queen, from Messrs. Flory and Black, Slough. A fine pure white Cattleya of good substance.

Awards of Merit.

Miltonia Constance (*vexillaria Lyoth × Isabel Sander*). A very large and showy flower with blush white ground and deep claret mask on the lip.

Odontonia Olivia (see Fig. 143) (*M. Bleuana × Odm. triumphans Crawshayanum*). The flower shows much of the O. triumphans parent; the ground is yellow, with chestnut red markings. Both these were exhibited by Messrs. Charlesworth and Co.

Odontoglossum Gatton Emperor var. Nero, from Sir Jeremiah Colman, Bt. A flower of fine form, coloured rich claret red with white margin and front to the lip.

Odontoglossum crispum Esmerelda, from Messrs. J. and A. McBean. A noble, blush white, home-raised crispum of the highest order of merit.

Odontioda Brilliant, from Pantia Ralli, Esq. The flowers are large, of fine shape, and coloured bright scarlet.

Cattleya G. P. Walker var. superba (*Tityus × Mendelii*), from Messrs. Flory and Black. A flower of fine shape, coloured rosy mauve with a velvety crimson lip and yellow disc.

Miltonia Butterfly var. Empress, from Messrs. Sanders. The plant bore two spikes of large and finely-formed white flowers, with dark violet mask on the lip.

Miltonia Sanderae Unique, from Messrs. Sanders. A white flower flushed with pink, and having a dark base to the lip.

Brasso-Cattleya Villa Jeanne (*C. Empress Frederick × B.-C. Dietrichiana*), from Messrs. Stuart Low and Co. A model flower of large size and mauve-purple colour.

Cultural Commendations.

To Messrs. Armstrong and Brown, for a noble plant of Dendrobium acuminatum with five spikes of carmine-rose flowers.

To Mr. Farnes, Orchid grower to Pantia Ralli, Esq., for Laelio-Cattleya Excelsior var. The Globe, with many showy flowers.

Groups.

The Orchids made a very fine display, completely filling one end of the large marquee, the groups being arranged around the sides and on cross staging in a similar manner to that of last year. Sir Jeremiah Colman, Bt., Gatton Park (gr. Mr. J. Collier) had one of the finest groups ever staged by an amateur at Chelsea, occupying the entire length of a cross stage. Cattleyas were especially fine, the varieties of C. Mendelii, including Quorndon House variety, and leucoglossa Hessle variety, were notably good; C. Mossiae was equally well represented. Among rare species were C. Skinneri Temple's variety, with fine heads of rose-purple flowers; the pure white C. intermedia alba and plants of the yellow Cattleya citrina. Laelio-Cattleyas were well shown; the Odontoglossums included Odm. Gatton Emperor var. Nero, a rich crimson-purple flower with white front to the lip, and other Gatton hybrids. The many forms of Odm. crispum included a fine example of Leonard Perfect, the very distinct variety Solum, roseum and Seagull. Odontiodas were brilliant and well displayed; Phyllis, Princess Bibesco, Gatton Glory, Mentone and others raised at Gatton, were prominent varieties. Among the Dendrobiums were two good specimens of the yellow D. Gatton Sunray; D. Dalhousieanum luteum, and the carmine-tinted D. acuminatum. Rare species always give special interest to the Gatton collections, and on this occasion there were many pretty Masdevallias, Pleurothallis and Bulbophyllums, the last including several of the feather-lipped species. Other rare species noted were Lissochilus purpuratus; the red Dendrobium Arachnites, the green Lycaste Locusta and pretty Pleurothallis and allied species.

Pantia Ralli, Esq., Ashtead Park, Surrey (Orchid grower, Mr. Farnes), had a magnificent group occupying the full length of a cross stage.

Fine specimens of Cymbidiums were arranged at the back, the best noted being C. Pauwelsii grandiflorum, a very distinct form of this favourite hybrid; C. Castor var. Laburnum, with clear, light yellow flowers; C. Beryl and C. Vesta, all pretty hybrids. Plants of the better known forms were well displayed, mingled with sprays of Odontoglossums, Odontiodas, etc. The Cattleyas embraced forms of C. Mossiae, the best being C. M. Ashtead Park variety, a large blush flower with rose lip.

The best form of Laelio-Cattleya Aphrodite was the variety Excelsior. Miltonias were well displayed, large specimens of the M. vexillaria being specially finely flowered. Odontoglossum Europa (coeruleum × crispum), Odontioda Canturarie and Oda. Brilliant, were fine examples, and among the Brassavola hybrids B.-L.-C. Jupiter, Ashtead Park variety was superb.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), staged a very attractive group in which the Miltonias, Odontoglossums and Odontiodas were finely displayed with Cypripediums, the scarlet Renanthera Imschootiana and many rare species, including Chondrorhyncha Chestertonii, species of Odontoglossum, Masdevallia and Coelogyne. A showy new Odontoglossum in the group was the one named Odm. Antares (Dido × illustrissimum), a large flower with yellow ground, and showy chestnut-red blotching; a very distinct flower.

J. J. Bolton, Esq., Claygate Lodge, Claygate (gr. Mr. S. Lyne), sent flowers of his fine form of Brasso-Laelio-Cattleya Jupiter.

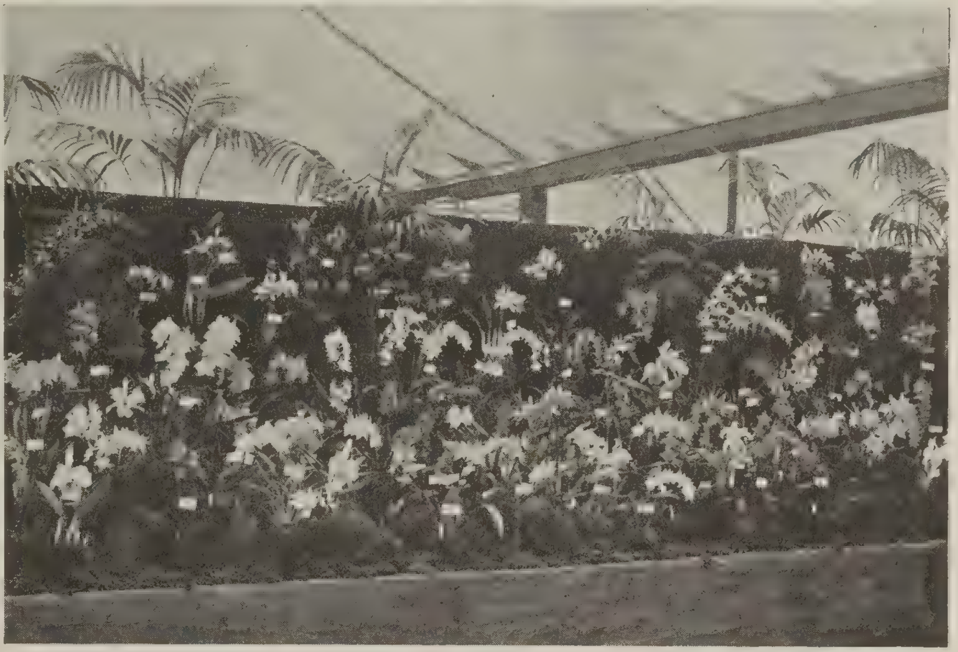


FIG. 144.—PART OF MESSRS. J. AND A. McBEAN'S ORCHID EXHIBIT AT THE CHELSEA SHOW.

Nurserymen.

Messrs. Charlesworth and Co., Haywards Heath, staged a magnificent group replete in the good things of the season, and all finely grown and profusely flowered. At one end was a fine batch of pure white Odontoglossums, including most of their famous xanthotes types. Then followed sections of Miltonia of various types, their darkest form of M. vexillaria being one of the richest in colour. Odontoglossums and Odontiodas were mingled effectively in sections, the forms of Odm. Llewellyn showing themselves at their best. The new Odm. Senator is a showy flower with novel features. Odontiodas ranged from scarlet to white blotched with purple, and the Cattleyas and Laelio-Cattleyas, including forms of L.-C. Fascinator, L.-C. Aphrodite and L.-C. Circe, were of the highest merit.

Messrs. J. and A. McBean, Cooksbridge, arranged on cross staging one of the finest collections of Odontoglossums and Odontiodas yet shown, the many coloured hybrids being almost entirely ruby-purple, and contrasting effectively with the home-raised white Odontoglossum crispum, which included a grand plant of Odm. c. Esmerelda, with two spikes of nineteen flowers, the like of which has not been excelled. This fine group included well-grown Cymbibiums at the back with the useful Oncidium McBeanianum and other slender species. Odontiodas, including the showy Oda. Brilliant, of deep scarlet colour, were arranged with white Cattleyas, showy Laelio-Cattleyas and some new forms which received awards.

Messrs. Sanders, St. Albans, staged a grand group, the leading features in which were the many forms of beautiful Miltonias, ranging from white with nearly black mask to rose-pink with crimson base to the lip. The forms of Miltonia Butterfly, and M. W. R. Dykes, a large white variety, with nearly black mask on the lip, were especially choice. Among the Odontoglossums, Odm. crispum St. Albans is a variety of fine colour, whilst Odm. Perseus is a showy flower. Forms of Laelio-Cattleya Aphrodite exhibited great variety in form and colour: L.-C. Britannia majestica is one of the best of its class shown, and the Cymbidiums arranged above richly coloured Odontiodas were very effective.

Messrs. J. Cypher and Sons, Cheltenham, had a grand group staged in their usual artistic manner. Fine Cattleyas and Laelio-Cattleyas were prominent; a grand example of Brasso-Laelio-Cattleya Veitchii had large and finely-coloured flowers; the old Brasso-Cattleya Digbyano-Mossiae is still one of the finest in size and shape. Batches of Cypripediums were effectively arranged, and among the many species not usually seen now were the large claret-blotched Maxillaria Sanderiana, the white, pink-tipped Chysis Limminghei, the Tulip-like Anguloa Clowesii, the scarlet Renanthera Imschootiana, and a pretty selection of Odontoglossums, Odontiodas and other showy hybrids.

Messrs. Stuart Low and Co., Jarvisbrook, Sussex, had a very fine group, in which forms of Brasso-Laelio-Cattleya Jupiter, B.-L.-C. Truffautiana and other Brassavola hybrids were well displayed with showy Laelio-Cattleyas, a section of which having purple bands on the petals being very distinct. Brasso-Cattleya Villa Jeanne (C. Empress Frederick × B.-C. Dietrichiana) is a pretty novelty. A good selection of Odontoglossums, Odontiodas and Cypripediums were also included in this collection.

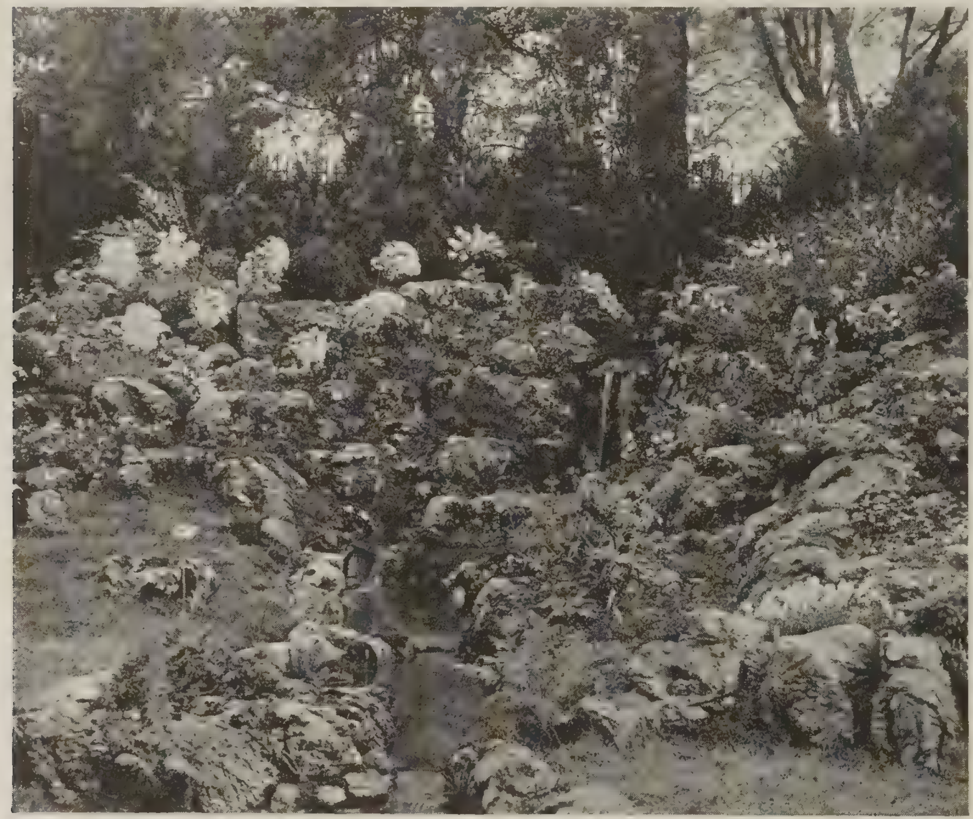


FIG. 145.—VIEW IN MR. G. G. WHITELEGG'S ROCK GARDEN EXHIBIT AT THE CHELSEA SHOW.

Messrs. Cowan and Co., Southgate, the raisers of all the beautiful forms of Brasso-Laelio-Cattleya Jupiter, had an effective group, including some of that showy hybrid, with Laelio-Cattleyas, Cypripediums, etc., some of which received awards.

Messrs. Flory and Black, Slough, staged a very effective group, including a large proportion of showy novelties. Cattleya Prince Shimadzu var. Olympus is probably one of the finest Cattleyas yet shown, and C. Irene Our Queen one of the finest whites of true Cattleya form, whilst C. G. P. Walker var. superba is an effective flower of distinct colour

Mr. Harry Dixon, Wandsworth Common, had a very pretty and well-arranged group of showy hybrids and species.

Messrs. Mansell and Hatcher, Rawdon, Leeds, staged a beautiful collection of Odontoglossums, Odontiodas, Cattleyas, Laelio-Cattleyas and Miltonias.

Floral Committee.

Present: Mr. H. B. May (in the chair), W. G. Baker, W. Howe, J. Jennings, C. R. Fielder, G. Reuthe, Amos Perry, G. Harrow, D. B. Crane, Arthur Turner, John Heal, W. B. Cranfield, J. B. Riding, Chas. E. Pearson, Sydney Morris, H. R. Darlington, Chas. E. Shea, Andrew Ireland, H. J. Jones, F. Page Roberts, Thos. Stevenson, H. V. Warrender, J. F. McLeod, W. B. Gingell, W. J. Bean, W. H. Page, T. Hay, Hugh Dickson, C. Blakey, and G. Jackman.

The Floral Committee had a vast amount of work to do, and they carried it out under some difficulty in a tent wherein other committeemen, not so busy, took shelter from the persistent and cold rain. No fewer than one hundred and eighty entries came before the Committee, and not one of these received a First-class Certificate, but sixteen were granted an Award of Merit.

Awards of Merit.

Hydrangea Triumph.—The name of this fine Continental variety has been Anglicised from Triomphe, but that does not detract from the beauty and usefulness of the plant. The "flowers" are of large size and excellent form, rich warm pink, slightly paler in the centre when young, and they are borne in large handsome trusses. A very attractive greenhouse plant, and probably a fine one for market. Shown by Mr. H. J. Jones, Lewisham.

Rhododendron Lady Constance.—A very bold and handsome variety, with widely expanded flowers of a rich reddish, old rose shade, that is very attractive. The base of the flower is paler and there are a few deep red spots near the base. Leaves large, deep, smooth green above, pale green below. Shown by A. G Soames, Esq., Sheffield Park, Uckfield.

Rhododendron Pink Shell.—In this lovely variety the broadly tubular flowers are of a delightful shade of shell pink, and they make an upstanding pyramidal truss. The blooms are seven-lobed and each lobe is broadly, but not deeply, notched. Shown by T. Lowinsky, Esq., Tittenhurst, Sunninghill.

Rhododendron (unnamed).—This pure white variety was shown under the name of Snowflake, but as that name is already taken a new name has to be found for it. The widely-opened flowers are of large size and the broad lobes have wavy margins. A loose truss of eight blooms was exhibited. Shown by T. Lowinsky, Esq.

Carnation Scarlet Iona.—A splendid clear scarlet, perpetual flowering variety, of excellent form and size, and, as shown, with an entire calyx. Certainly one of the finest scarlet varieties yet seen. Shown by Mr. C. Engelmann, Saffron Walden.

Carnation Donald.—A bold, large flowered, rich crimson, perpetual-flowering variety, deliciously close-scented. The petals are very ful and slightly fringed at the margins. Stout stems and entire calyx. Shown by Mr. C. Engelmann.

Carnation Surprise.—A beautiful rich pink perpetual-flowering variety with salmon tinting in the centre. The large flowers are finely formed and the petals are slightly fringed. Shown by Mr. C. Engelmann.

Primula chrysopa.—This handsome and free-flowering Asiatic species has tufted growths composed of pale green leaves, three to four inches long, with serrated margins, and carried on rather long footstalks. The flowers are carried on stout scapes and the first whorl is borne at a height of from 10 inches to 15 inches. The individual blooms are about an inch across, blue or lavender blue, with a yellow eye. There appears to be some variation in the blue colouring among seedlings, but the species is very free and attractive and should become a useful garden plant. Shown by Mr. A. K. Bulley, Ness Neston.

Campanula calcicola.—We could not find this plant, but understand it is somewhat like C. Portenschlagiana, with lilac-coloured flowers and deeply veined or netted leaves. Shown by Mr A. K. Bulley.

Gentiana Hopei.—A distinct and interesting species of erect growth, and bearing its flowers usually twin, in the axils of the stiff, opposite leaves. The flowers are clear blue on the outside and paler within, but they do not appear to open out, and therefore lose a great deal of possible effectiveness. We do not think it will become a popular plant. Shown by Mr. A. K Bulley.

Incarvillea Bees' Pink.—This plant is very like I. Delavayi in habit, form and size of flower, but differs in colour. The showy blooms are of a pleasing, soft pink shade, with deeper markings near the rich lemon-coloured throat Shown by Messrs. Bees, Ltd.

Begonia Lord Lambourne.—A gorgeous, double-flowered, tuberous-rooted Begonia, with blooms of large size, flattish and composed of broad petals of a rich orange-amber colour. A grand variety. The specimen exhibited was a marvel of high cultivation and carried nine huge flowers. Shown by Messrs. Blackmore and Langdon, Bath.

Lupinus, Downer's Strain.—This strain of Lupinus is characterised by sturdy growth and very long and well-furnished spikes of attractive flowers. The colours are varied and include blue, blush, purple, pink, old rose, lavender, and cream. Shown by Mr. G. R. Downer, Chichester.

Rose Capt. F. S. Harvey Cant.—A large-flowering, finely formed H.T. variety, broad-petalled and full (Fig. 140). The colour is bright pink, with a deep salmon-pink glow in the centre and at the bases of the broad petals. This fine Rose won the N.R.S. Gold Medal at Wolverhampton last year (see p. 57, July 22, 1922). Shown and raised by Messrs. Frank Cant and Co., Colchester.

Rose Chastity.—A prettily named climbing hybrid tea Rose. The broad, white petals make up a bloom of lovely shape and pleasing appearance. A delightful novelty. Shown by Messrs. Frank Cant and Co.

Rose Orange King.—A charming addition to the useful Polyantha section of Roses suitable for bedding. As shown, the flowers are rather small, moderately double, carried in erect, elegant trusses, and of a pleasing orange-salmon colour. Shown by Messrs. Wm. Cutbush and Son.

Cultural Commendation.

To Androsace foliosa, a well-known species, with pink, yellow-eyed flowers. A large pan was shown, finely in flower. Shown by Lady Aberconway, Bodnant, N. Wales.

OTHER NOVELTIES.

Baron Schröder, The Dell, Egham, exhibited veral hybrid Calceolarias, and one of these, med aureafolia splendens, was very attrac- e. It had neat leaves with deep centres, and abundance of golden-yellow red spotted wers. Aucuba japonica crotonaefolia, with lden, green-marked leaves, was very attractive d one of the best of the richly-coloured forms have seen; it should make a good market ınt if the colour holds.

Roses.

It needed but an hour's sunshine to make anticipations of the lay Press materialise, d then it would almost have been "Roses, ises all the Way," for there were plenty of ises, both as well grown pot plants and as blooms, to satisfy even the most enthusi- ic Rose grower. Although the blooms did open so fully as the exhibitors anticipated, y were very beautiful, and the retarding ct of the inclement weather caused them to fresh much longer than would otherwise e been the case.

The groups of pot plants arranged on the r in the tents were a delightful feature of show.

At the hospital end of the big tent, Mr. ISHA J. HICKS had a magnificent group. The weeping standards and pillars of such free vering sorts as Lady Gay, Paradise, Excelsa, lenia and White Dorothy Perkins, rose above great many dwarf examples of splendidly vered plants of Premier, Lloyd George, ıelia, the large pale blush Mrs. Elisha J. ks, Mr. John Cook, a smaller blush, T. Margaret Horton, of Sunburst type orange-yellow colour, and Souvenir de ıdius Pernet, a valuable H. T. of good ı, and in colour very suggestive of slightly paler Marechal Niel Rose. His multiflora variety Fairy Queen, bears e trusses of small, double, white flowers ch have pale yellow centres. Ethel and s Flora Mitten, two other free flowering eties, were also well represented; the former rs plenty of small flowers, while the latter ıuch larger, and both have somewhat similar uring to the wild Rose. Golden Emblem, handsome standards of General McArthur Caroline Testout were also exceptionally l.

n attractive group was also arranged by srs. B. R. CANT AND SONS. Their principal lty was Lady Dixon Hartland, a salmon T., shading to old gold at the base of the ls. It is a very attractive and well formed m. Sovereign, of rich colour, was very tively massed in the centre of the collec- Covent Garden was also shown in ıtity. Amongst the free flowering varieties vell displayed were Blush Rambler, Minne- , Thousand Beauties, and the dwarf variety o. The Rev. J. H. PEMBERTON confined elf largely to the polyantha varieties, and ved his Havering Rambler and Pemberton's te. The General is a good rich crimson ıred Rose. As a bordering to the stand, Mr. berton used sprays of Rosa spinosissima. standard sorts as Madame Butterfly, y Sharman Crawford, Hoosier Beauty, Los eles and Melody were well set up by Messrs. EST PAUL AND CO.

goodly collection of new and recent varie- of Roses was included by Messrs. F. CANT Co., in their collection. Capt. F. S. vey Cant (see Fig. 140), which received a l Medal last year, was especially well staged is a valuable pink H. T. variety, which ld have a great future. Henry Nevard, h won the Clay Cup for its fragrance, is a bright attractive variety. Chastity is rpetual climbing Rose, bearing good, double ny-white blooms. Mrs. E. Claxton is a ıdid pillar Rose, which in its colour and suggests a smaller and more pointed La ce. Mrs. F. S. Harvey Cant is a good- H.T., possessing much of the delicate blush ıring of Devoniensis.

ief amongst the good Roses staged by Mr. GE PRINCE was the large stand of Souv. de Claudius Pernet, which possessed the rich yellow colouring of Marechal Niel to a greater extent than any other exhibit of the variety in the show. Irish Fireflame, cut from the open garden, was beautifully coloured. Mr. Prince also showed long, free flowered branches of the yellow Banksian Rose, and of Rosa ochroleuca.

In a corner space Messrs. WM. CUTBUSH AND SONS had a very attractive group of the cluster Roses, and this included the new dwarf Polyantha, Orange King, which is of erect habit, and bears small flowers of uncommon colour. They also used Dorothy Perkins, Lady Gay, Tausendschon, Ellen Poulsen, Orleans Rose, and Greta Kluis to good effect. Messrs. WATERER, SONS AND CRISP had an attractive group in the body of the tent, where they displayed standards of Caroline Testout, Lady Hillingdon, and other varieties, with dwarf plants of Mrs. A. Tate, Lady Ashtown, General McArthur, Independence Day, and several good Wichuraiana varieties.

Masses of bloom were splendidly disposed by Messrs. WM. PAUL AND SON. They had unusually freely flowered standards and pillars of American Pillar, Hiawatha, Lady Godiva, Lady Gay and Ethel, while amongst the excellent dwarfs were Thos. Aaron Ward, Mr. T. Hillas, and Leonora. The last named is a new H.T. of attractive dark crimson colouring. Messrs. J. PIPER AND SON associated such Roses as Paul's Scarlet Climber, Tausendschon, Dorothy Perkins, Lady Gay and American Pillar, with Clematis, Wistarias and other flowering shrubs.

Sweet Peas.

Messrs. ANDREW IRELAND AND HITCHCOCK, Marks Tey, exhibited a collection of the best varieties of Sweet Peas, notably: Lord Lascelles, lavender; Mascotts' Purple, an immense flower; Improved Daisy Bud, deep blush pink; Shamrock, mauve, one of the best of its colour. The group was flanked with a most extraordinary novelty in the shape of a hybrid between Scarlet Beauty Sweet William and a scarlet border Carnation. The habit of the plant is sturdy and erect, the stems being stiff enough to stand without the slightest aid. The flowers are single, brilliant rose in colour, fringed on the edges, and about 1½ inches across, and are borne as many as eight or nine in a truss. It is intermediate in habit between the parents, and should make an excellent plant for cutting and other purposes.

Messrs. ROBERT BOLTON AND SON, Halstead, Essex, put up a remarkably attractive collection of about 50 varieties of Sweet Peas in ornamental wicker Gainsboro' baskets, which lent themselves well for display purposes. Among the novelties we noted Wizard, orange scarlet; Comrade, apricot-peach; Bonfire, a lovely pink and rose bicolor; Skylight, blue on cream; and Daffodil, one of the best yellows yet seen.

Messrs. ALEX DICKSON AND SONS, Belfast, had an extensive display of their "Hawlmark" varieties. About 10,000 sprays were tastefully arranged in tripods along the back, and the others on spiral wires and in bowls, along the front. The novelties included Champagne, a soft creamy-yellow; Celeste, a deep lavender; Purple Perfection, a brilliant purple with large blooms; and Lucifer, a fine deep rose; Powerscourt a splendid lavender; Fairy Queen, cream flushed, bright rose; Hawlmark Pink, bright pink; and Elegance, a lovely deep blush, were some of the other 40 varieties that were exceedingly attractive. Prince of Orange, a fine orange-scarlet, is likely to be a favourite with market growers.

Mr. J. STEVENSON, Wimborne, Dorset, exhibited a collection of home-raised novelties in tall epergnes, set off with Asparagus. Amongst the most striking varieties noticed were Delight, a charming salmon-pink on a cream ground; Charming a bright rose; Felicity, blush pink on a white ground; Poppy, a remarkable sun-proof, orange-red variety; Diana, a beautiful lavender; and Wild Rose, old rose shaded salmon.

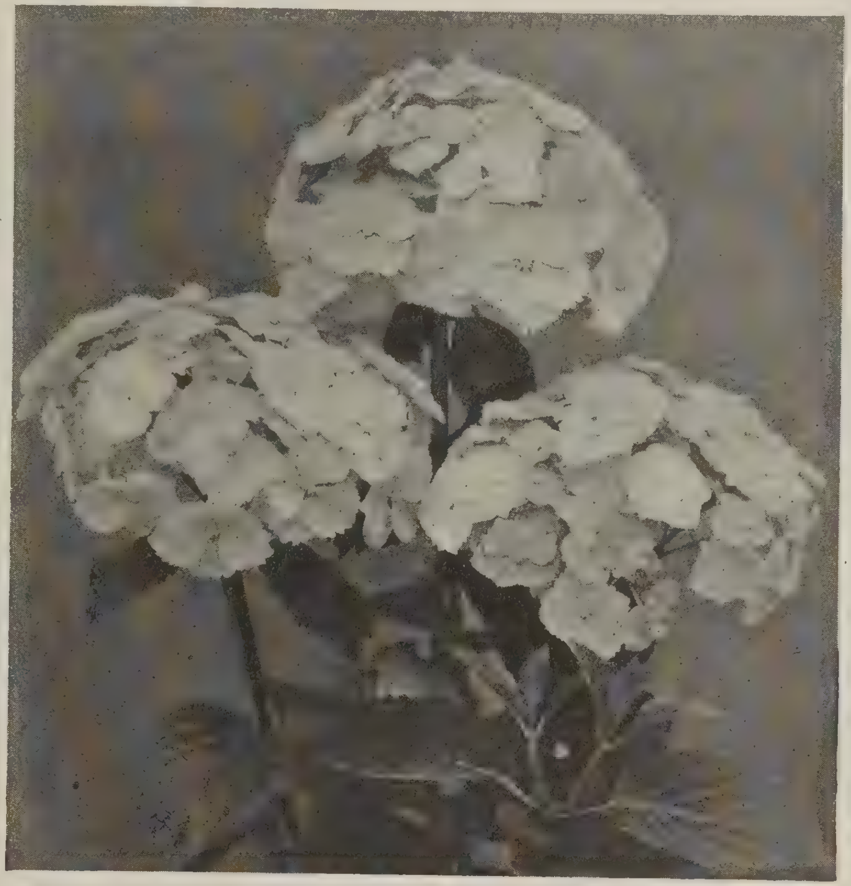


FIG. 146.—HYDRANGEA PARSIFAL EXHIBITED AT THE CHELSEA SHOW BY MR. H. J. JONES IN HIS GOLD MEDAL GROUP.

The Preston Hall Nurseries Industrial Settlements, Inc., Aylesford, Kent., put up a fine display on stands, in which Sunset, deep rose; Tangerine, orange red; Mrs. Tom Jones, blue; Wild Rose, a lovely clear rose novelty; Mascotts' Helio, lavender; Mascotts' White; and Barbara, salmon, were effective. The whole group was finished off with Asparagus and Smilax.

In Messrs. Jas. Carter and Co.'s magnificent group were several vases of the most popular varieties, and also such novelties as Duchess of York, a fine blue; Princess Patricia, heliotrope blue, one of the largest-flowered blues; Delight, a cream-flushed variety; Viscountess Lascelles, pale lavender blue; Ruffles, a rosy lavender; and Snowdrift, a new frilled variety.

Messrs. Sutton and Sons, Reading, had a most artistically arranged collection, displayed in bowls placed on pedestals draped with black velvet and backed with archways festooned with Smilax. Amongst the most conspicuous varieties were Tangerine, bright orange; Constance Hilton, the best white; Charity, a deep crimson beauty; Mrs. Tom Jones, blue; Gladys, lavender mauve; Mary Unwin, orange scarlet; and Warrior, a deep maroon.

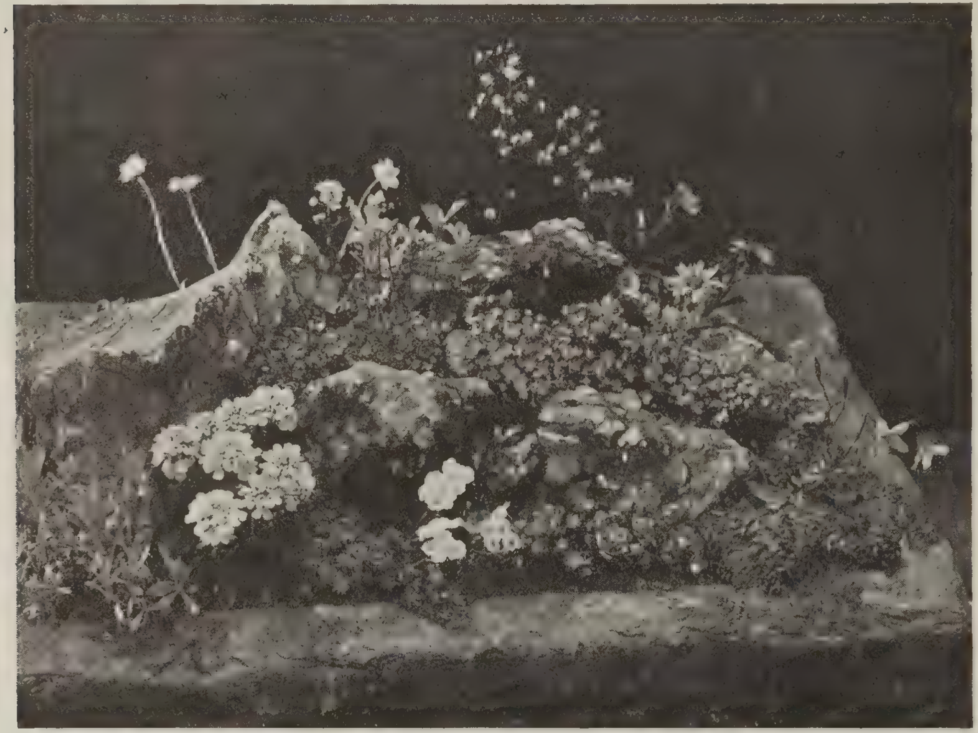


FIG. 147.—A MINIATURE ROCK GARDEN IN AN OLD STONE SINK; EXHIBITED AT THE CHELSEA SHOW BY MR. CLARENCE ELLIOTT.

Messrs. Dobbie and Co., Ltd., Edinburgh, put up a magnificent collection of Sweet Peas occupying a large area along one side of the large tent, banked up from the ground. The exhibit comprised over 40 of the leading varieties, all of which were examples of fine cultivation. Besides the well-known standard varieties we noticed the following among the novelties:—Mary Rose, certainly one of the finest, clearest of salmon-roses. The sprays were long and sturdy, and carried not fewer than four blossoms, many of which were semi-double. This variety should become a leading one at Sweet Pea shows, and for the market growers also. Crimson King is another novelty which Messrs. Dobbie are showing by the courtesy of Messrs. C. C. Morse and Co., San Francisco. The flowers are a deep, intense crimson, with magnificent substance. Royal Sovereign is a glorious deep orange, with larger blossoms than generally seen in this shade. Youth is another of Messrs. Morse's novelties, and has large flowers, with white ground edged with pink.

Rock Gardens.

Unconventional planning, unless cleverly carried out, is apt to produce a bizarre and restless effect. It cannot be denied, however, that a touch of originality in design is absolutely necessary to raise a garden from the ordinary level. This character, although seen in small details, seems sadly lacking in the general plan of most of the rock and formal gardens at the Chelsea Show. The rock gardens are largely of the same pattern, with a central waterfall and stream. Water is also general in the case of the formal gardens, which are chiefly of the sunk variety, surrounded by low, dry walling. It is gratifying to note, however, that in the majority of cases the general effect has been carefully considered, and not spoiled by a superabundance of seats or statuary, and that practical planting schemes have been employed and anachronisms avoided.

Quite a novel feature of the rock gardens were the miniature gardens shown by Messrs. Clarence Elliott, Ltd., contained in old stone pig troughs and in stone sinks (see Fig. 147), in which such plants as Sedums and Sempervivums were growing. A happy touch was the inclusion in one stone pan of the little Orchis ustulata, a rare British species. In the main garden, built out of water-worn Yorkshire limestone to represent natural rock beds, a well-coloured form of Iberis gibraltarica and some beautiful Aquilegia glandulosa were conspicuous.

Messrs. R. Tucker and Sons reproduced a strip of Alpine meadow-land in which was planted numbers of Trollius, and groups of Cytisus decumbens. A tumbling rill ran through the middle, and by its side grew Dodecatheon Meadia and Primula Cockburniana. Higher up, Cypripedium acaule, Orchis mascula and the Butterfly Orchid were visible. The effect of natural stratification was very good and the whole tastefully planted.

In a similar style and also most attractive was the exhibit of Mr. G. G. Whitelegg, Chislehurst. Of outstanding beauty were feathery inflorescences of Saxifraga Cotyledon platyphyllum and of S. longifolia. The pretty blue Linum perenne was freely planted, and a hybrid between Dianthus alpinus and neglectus was much admired (see Fig. 145).

A bold but natural rocky effect was achieved by Capt. Symons-Jeune with large pieces Somerset stone. The sides of the strea running through the garden were border with masses of the blue Bugle (Ajuga reptan but the dominating colour was red, occasion by such plants as Japanese Maples, a mos Saxifrage named Lord Lascelles, red-flower Cytisus and red-fruited Pernettya. Mess Pulham & Sons reproduced a piece of Suss scenery, using large blocks of sandstone. T water came from two sources, one a sheer f and the other a rippling brook. The planti was so arranged that the cost of maintenan should not be excessive.

Of a simple nature also was the rock a water garden of Messrs. Hodsons, Ltd. Th Fern-edged stream was so designed that t water was broken throughout its course. T most conspicuous plants were Gentiana acau and the fiery Primula Aileen Aroon, of whi there were large patches. Messrs. T. R. Hay & Sons put up a pleasant rock garden with central waterfall and stream, around which gr the double-flowered Marsh Marigold, Ping culas and Gentiana verna. Some distance aw were plants of the sweet-scented Daph Cneorum.

The garden of Messrs. W. H. Gaze & So was of a different type, involving the use much larger boulders and of Rhododendro Azaleas and Iris. Water flowed from t waterfall into a small pond in the middle which was a rocky island. This, howev erred on the large side. Adjoining this gard was a miniature example of Messrs. Gaz green hard tennis court, with permanent su marking, a red court and a selection of gard ornaments.

A fine vista was obtained looking down t water garden of Messrs. J. Carter & C Raynes Park. The water made a fall from piece of rockwork, and continued as a strea overhung with a willow and bordered wi Iris and Primulas planted in the grass. paved path ran by the water-side, along whi were some fine pink-flowered Rhododendro The garden exhibited by Messrs. R. Neal Sons consisted of a well-planted rock bank the foot of which was a pool bounded by so stone balustrading. This seemed out of pla and did not go well with the other walling rough rectangular stone blocks. Some go Rhododendrons were planted in the grass. rock bank was made by Messrs. Wm. Cutbu & Son and planted with Azaleas and rock plan In a little dell was a group of Primula japoni The stones were of a good warm sandstone, b their sizes were too uniform.

Hardy Flowers.

Mr. Amos. Perry put up a fine group Lupinus polyphyllus, in which we noticed beau ful and delicate art shades such as rose, salm pink, etc. The bearded Irises were very c spicuous; they included such fine varieties Lord Lambourne, a bronze, and Kulan Tit Gladys Roberts is the name of a charming r purple variety. All the specimens shown were Mr. Perry's own raising and were remarka for their long sturdy stems and floriferous hab Herbaceous Paeonies of the officinalis ty made a wonderful splash of colour next t Irises. Thermopsis montana was conspicu with its masses of bright yellow Pea-li blossoms. Several specimens of the har Orchid Cypripedium spectabile pubescens and macranthum were well shown. Hardy Primul such as P. heliodoxa, bright yellow; P. Lissad Hybrid, scarlet; P. pulverulenta, purple; and Cockburniana, orange scarlet, were well show Other hardy flowers such as Trollius, Pyrethru Poppies, Geum, Linum, Eremurus, Anemon Anthemis macedonica, Heuchera tiarelloid etc., were shown in great profusion. Spec mention may be made of the beautiful wh Columbine, Aquilegia nivea grandiflora.

Messrs. Bees, Ltd., Seeland Nurseri Chester and Liverpool, had a fine display long-spurred Columbines, in which many shad of their special strain caught the eye. In t centre were specimens of Lilium regale. also noticed a nice batch of Primula Bulleya Pyrethrum roseum vars., Lilium croceum, Ca panula Telham Beauty, Primula Red Hu

Lilium Krameri, Geum Lady Stratheden, the are and curious Roscoea cautlioides, and R. Humeana, Lupinus Sunshine (yellow), white and purple Irises, Torch Lilies, etc. Special mention hould be made of Celmisia spectabilis argentea with large, pure white, Marguerite-like flowers, nd of Primula chrysopa, a new Chinese species with large lavender blooms. A new hybrid ncarvillea called "Bees Pink" with large deli-ate pink flowers is a decided acquisition. Other ovelties included Meconopsis pseudo-integrifolia nd M. Delavayi (purple), Primula chionantha white), P. nutans (pale lavender), Arisaema andidissimo, a curious dwarf Chinese Aroid, with a large white, hooded spathe.

Messrs. **G. Gibson and Co.**, Bedale, Yorks., ut up a circular group, composed of the new Trollius caucasicus Mrs. G. Gibson, Lupins, Verbascums, Primula pulverulenta, Torch Lilies, Iberis gibraltarica, and a splendid Oriental Poppy named "King George," remark-ble for its deeply incised and fringed petals. Other plants were Dodecatheon Meadia, and a roup of Daphne Cneorum. A special note hould be made of Gibson's New Giant Orange celand Poppy. It has flowers about four inches cross, brilliant orange-tangerine shade. on stems 8 to 24 inches high.

Messrs. **R. W. Wallace and Co., Ltd.**, Tunbridge Wells, put up a splendid collection of ardy flowers. The principal feature of the xhibit was Liliums (see Fig. 148). Amongst hese were L. Farreri, the "marbled Marta-on," the pure white reflexed petals being eavily speckled with violet; L. regale, L. Willmottiae, bright orange, and L. Krameri, plendid pink. The Lupins and Irises intermixed with Eremuri, Incarvilleas, and Camas-ias, Primulas. etc., were also conspicuous eatures of a truly wonderful display. Special ote may be made of a fine mass of the rare, Chilian Andean Habranthus pratensis, the brilliant scarlet flowers of which attracted from far. Messrs. **Rich and Co.**, Bath. staged a ice lot of Pyrethrums, Oriental and Iceland Poppies, St. Brigid Anemones, Geums, Lupins, Chrysanthemum maximum "Rentpayer," and Violas. Messrs. **Barr and Sons**, Covent Gar-en, occupied a large space on one side of a big ent with a fine collection of hybrid polyphyllus x arboreus Lupins. The Early Dutch Iris Xiphium in several varieties was a conspicuous eature. In addition were several specimens of he still rare Regeliocyclus Irises, in many forms. Early Gladiolus, Oriental Poppies, Pyrethrums, Eremuri, Trollius, Columbines, Heucheras, nd a fine mass of the yellow flowered satis glauca completed a fine group, with the ddition of an edging of rock and alpine plants. Messrs. **Wm. Artindale and Son**, Sheffield, staged a collection in which Eremuri formed a ery conspicuous feature and included Elwe-ianus, robustus and superbus. We also noticed ome fine Darwin Tulips, Lupins, Verbascums, Pyrethrums, Oriental Poppies, Thalictrum quilegifolium, Nepeta Mussinii and Incarvillea revipes, etc.

The Chalk Hill Nurseries, Reading, had very distinct and varied group in which Mimulus and a very fine show of Chalk Hill iant Pansies, Primula hybrids, Lupins, Violas, satis glauca, Geum Mrs. Bradshaw, and the lessed Thistle (Carbenia benedicta) were tractive features.

The Maytham Gardens, Rolvenden, Kent, lanted a crescent-shaped border at the Em-ankment end of the grounds, and displayed roups of herbaceous Paeonies, Geums, Delphi-ums, Thalictrums, Columbines, Irises, Violas ncluding Arkwright Ruby), Lupins, Pansies, c., in a very attractive manner on the sloping ank placed at their disposal. Special note ust be made of the rare Paeonia lobata with eautiful cherry-salmon flowers about 4 inches cross. In the large tent the same firm had a riking collection of Lupins chiefly raised by emselves. One, called Maytham Modesty, ith delicate lavender flowers, was particularly oticeable. Mr. **Wm. Wells, Junr.**, Mers-am, had a well-staged group in which Torch ilies, art forms of Oriental Poppy, Centaurea ontana rosea, Columbines, Hybrid Lupins and nely coloured Pyrethrums were leading features. Mr. **G. W. Miller**, Wisbech, had a fairly extensive group in which Pyrethrums, Oriental Poppies, Heucheras, Torch Lilies, Lupins, Daisies, Tulips, etc., were well shown. Special mention should be made of Pyrethrum Queen Mary, a lovely rose-pink, and the deep crimson Mrs. Bateman Brown; and a new seedling No. 1, a fine pink, remarkable for its early flowering.

Messrs. **Waterer, Sons and Crisp**, Bagshot and Twyford, had an attractive group of hardy plants, in which hybrid Lupins played a conspicuous part. Delight, rose, and Sunshine, yellow, were two particularly striking forms. Delphiniums occupied the centre of the group, and were flanked with bearded Irises, Pyrethrums, Geums, and Oriental Poppies, the whole group being edged with Nepeta Mussinii.

Messrs. **Herbert Chapman, Ltd.**, Rye, Sussex, staged a very attractive lot of own-raised seedling bulbous Irises originally derived from the Spanish and tingitana species They are a vast improvement on both parents, and have the advantage of blooming before the ordinary Spanish varieties, and fill a gap between the latest Tulips and Daffodils. The colours are practically in the same category as the Spanish varieties, some being perfectly pure, and others marked with various shades. Mr. Chapman would like to see the yellow keel eliminated from the falls, but has not much hope of doing this at present.

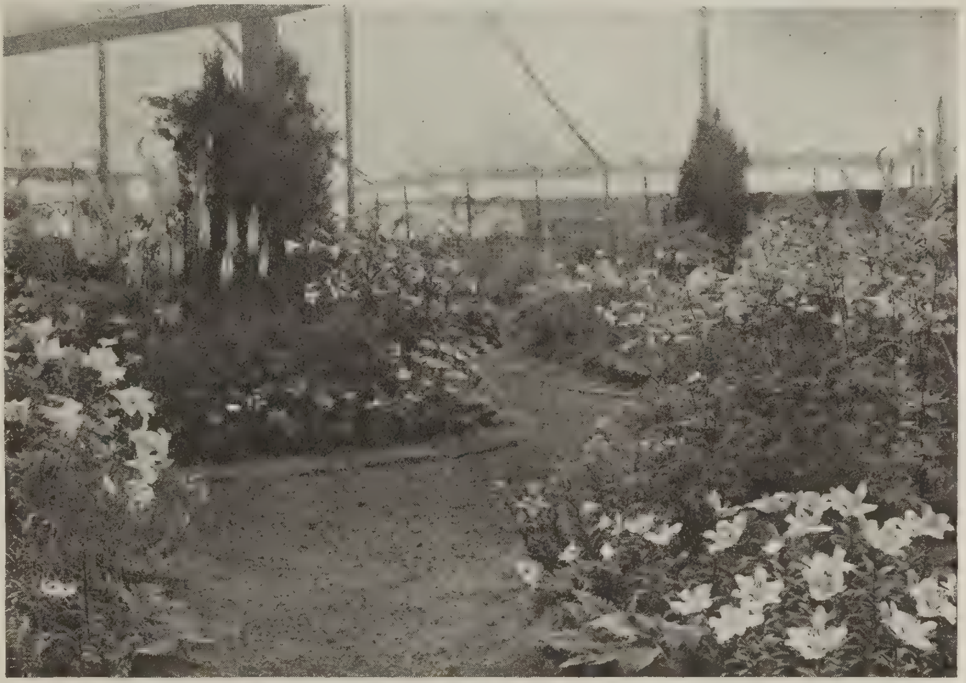


FIG. 148.—MESSRS. R. WALLACE AND CO.'S LILY GARDEN AT THE CHELSEA SHOW.

Messrs. **Storrie and Storrie**, Glencarse, Perthshire, had a wonderful selection of Polyanthuses, bunch Primroses, and Alpine Auriculas, put up in baskets and elevated on stands. They displayed a great range of colour. Messrs. **Bakers**, Wolverhampton, put up a large group of Chinese Primulas and their hybrids; Trollius (T. Smith and Light Ball—both good varieties); the fine yellow Geum Lady Stratheden, and hybrid Lupins. Thrift, Heucheras, and Incarvillea brevipes constituted the most conspicuous subjects. Interspersed with these were good specimens of Cytisus, Daphnes and Kalmias, with a groundwork of choice Alpines.

The **Orpington Nurseries Co.**, Orpington, Kent, staged an extensive collection of bearded Irises, containing about 160 distinct varieties, many of which were shown for the first time, and also a number of fine new seedlings. Prominent amongst the novelties were Aphrodite, a fine tall pink; several new varieties of Bliss's famous Dominion race, including Canopus, Bertrand, Majestic, Titan, Moa, Paladin, Glamour. Lent A. Williamson and Sapphire are both excellent. A group of Alcazar with shaded standards and rich purple falls was very fine.

V. C. **Vickers**, Esq., Newsells Park, Royston, Herts (gr. Mr. W. Watkins) had a wonderful display of long-spurred hybrid Columbines, with many shades of colour in the 40 varieties shown. The arrangement with their own foliage only was very effective. Messrs. **Reamsbottom and Co.**, West Drayton, Middlesex, and Geashill, Ireland, had a splendid display of their famous St. Brigid Anemones, all grown in the open ground in their nurseries, many of the blooms up to 4 inches across. The colours varied from white to pink, purple, salmon, blue, scarlet, mauve—in fact, all shades except yellow. The flowers were arranged in bowls and vases with their own foliage, and were exceedingly effective.

Messrs. **Godfrey and Son**, Exmouth, made a compact display of Lupins of various shades, and Oriental Poppies in shades of cream, crushed strawberry, maroon, etc. Mr. **G. R. Downer**, Drayton Manor Nurseries, Chichester, had a charming lot of rose, pink, white, and blue Lupins, remarkable for the length and sturdiness of the spikes, many of which were over two feet long and smothered in bloom.

Messrs. **Maurice Prichard and Sons**, Christchurch, put up an effective group of Pyrethrums, Irises, Lupins, new Pinks, and Heucheras. The combinations of colours were quite effective. The new Pink called Don Giovanni, with large pale pink double flowers, very highly scented, was specially noticeable.

Messrs. **Blackmore and Langdon**, Bath, staged about 60 varieties of Delphiniums, averaging from five to eight feet in height. Notable amongst them may be noted Mrs. Townley Parker. a lovely open flower, with broad overlapping petals of a blue, somewhat deeper than the Cambridge colour, and with a conspicuous white eye or centre. Lord Derby is unique in colour, being violet-rose with large semi-double flowers. Mrs. Christie Miller is perhaps the best white, and Lord Lansdowne is a very fine blue.

Messrs. **G. and A. Clark, Ltd.**, Dover, had a rectangular exhibit, consisting chiefly of choice varieties of single and double Pyrethrums, rising from the level to a centre of Eremurus Elwesianus and Astilbe Venus. Among the Pyrethrums, special mention may be made of Mrs. T. M. Pocock, a fine crimson. Other good hardy flowers were Gladiolus, Spanish Irises, Verbascums, Oriental Poppies, Heucheras, Lupins, and the fine orange-scarlet Lychnis Arkwrightii, with brilliant masses of bloom.

Dr. MacWatt, Morelands, Duns, Scotland, had a very extraordinary and interesting collection of Primulas and Auriculas, remarkable for good culture and variety. Noticeable among the Primulas were luteola, rupicola, Smithiana, heliodoxa, conica, muscarioides, vincaeflora, Sikkimensis, secundiflora, and other gems. Mr. Fred. G. Wood, Ashstead, in addition to a nice rock garden exhibit, also displayed good plants of Anchusa "Opal," Pyrethrums, Oriental Poppies, Pentstemon Scouleri, Geums, Heucheras, etc.

Mr. F. Gifford, Montague Nursery, Hornchurch, put up an effective lot of Paeonia officinalis lobata, the single flowers of which, with bright crimson petals, round a cluster of yellow stamens, stood up remarkably well and in perfect condition. Mr. H. Clarke, Taunton, staged an exhibit of choice bedding Violas, all artistically arranged in wicker bowls and shallow pots and pans. Among the most attractive were noticed Drummer Wilson, soft yellow edged with lavender; J. V. Macdonald, one of the finest whites; Primrose Queen, soft yellow; and Milton Jumbo, with large deep velvety purple flowers.

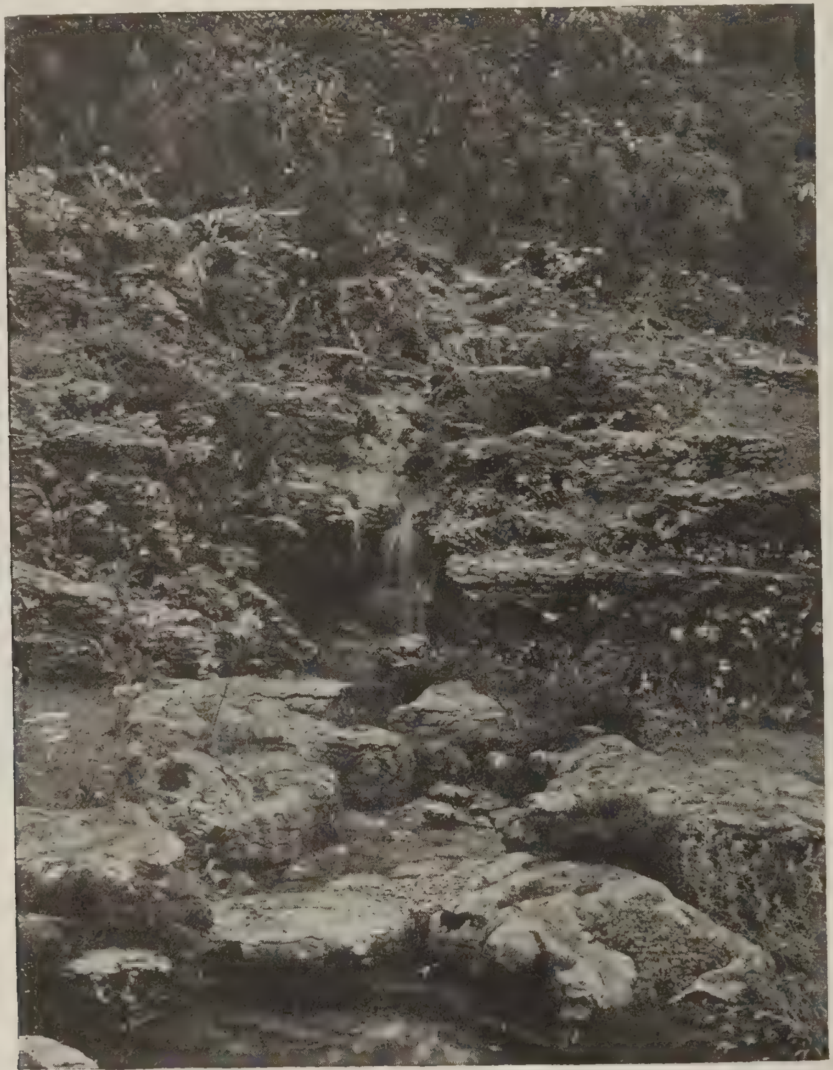


FIG. 149.—VIEW IN MESSRS. R. TUCKER AND SONS' ROCK GARDEN AT THE CHELSEA SHOW.

Messrs. J. Cheal & Sons, Crawley, in addition to rock garden exhibits, staged a good collection of hardy perennials, including Verbascums, fringed Oriental Poppies, Bearded Irises, Lupins, Paeonies, Aquilegias, etc. Messrs. R. H. Bath, Ltd., Wisbech, arranged a nice collection of Tulips, Trollius, Irises, Paeonies, Lupins, Heucheras, Scilla Blue Queen, etc., in their usual bold and effective style. A vase of Tulip Dom Pedro, with deep brown, bronzy flowers, was particularly conspicuous; also Lucifer, deep red shaded orange.

Mr. Wm. Yandell, Castle Hill Nurseries, Maidenhead, staged a grand lot of bedding and show Violas, consisting of about forty varieties. Outstanding sorts amongst the best were Morrison, deep mahogany and bronze, flushed rose; Mauve Queen, J. V. Macdonald, the new Moseley White, a good form of Mrs. Chichester, Kitty Bell, lavender, and Klondyke, a real good yellow, easy to propagate. Mr. C. H. Taudevin, Willaston, Cheshire, had a nice little exhibit of hardy Asiatic hybrid Primulas, raised from P japonica, P. pulverulenta, and P. heliodoxa, all exhibiting sturdy vigour for use in the bog garden.

Mr. John Forbes, Hawick, N.B., put up an exhibit of East Lothian Stocks and the old Scotch Rocket, which is rarely seen, Hesperis matronalis purpurea plena and albo plena, and the dwarf bedding Dahlia Coltness Gem, with its brilliant crimson flowers. In addition to these were several fine varieties of Violas and Pansies. One of the oldest and most prolific, yet rarely seen, was Jackanapes, deep maroon on the upper petals and bright yellow on the lower ones.

Begonias.

Messrs. Blackmore & Langdon, Bath, put up a magnificent group of their well-known strain of tuberous Begonias. Each plant was a perfect specimen, of high cultivation and great floriferousness, coupled with which one could not but admire the great substance and wonderfully perfect form of the individual blooms. Amongst the new varieties special mention should be made of Hilda Langdon. The flowers are of a rich and lovely pink, with deeper shades in the centre. Mrs. F. Bedford is a fine, shapely bloom, with extra large rounded petals, soft blush edged with pink and shaded rose in the centre. The variety called Lord Lambourne is one that attracted universal notice. Its flowers are of a rich orange-amber colour, large and well formed, resembling a glorious Camellia.

Clematis.

Messrs. Geo. Jackman and Son, Woking, one of the very oldest exhibitors at the R.H.S. shows, put up a fine group of Clematis, occupying about 450 square feet and comprising 40 distinct varieties. All the old favourites were present, but amongst the newer varieties we noticed The Bride, a beautiful pure white 6-8 petalled variety with yellow stamens. This is a cross between one of the small-flowered species and a variety of the patens type. It appears to be a very free flowering variety, and the blooms continue to open week after week until the late autumn. Crimson Beauty is another novelty shown for the first time last year, and its flowers are of a rich, deep crimson that can be seen from a good distance. It is several shades more brilliant than the old variety Mdme. Ed. André which was also shown in fine form. One of the finest Clematis still is Lady Northcliffe, with large deep and clear purple flowers, which have a decided blue sheen when seen in the open-air.

Carnations.

Messrs. Allwood Bros. staged an imposing exhibit of Carnations that occupied a considerable amount of space in one of the large tents. It took the form of a terrace garden raised above the general level, with crazy paths approached by stone steps and with old leaden vases at appropriate spots. At the four corners approached by the steps were circular beds filled with the firm's new hardy perpetual border Carnations, of which Sussex Beauty, heliotrope, Sussex Pink and Sussex Purple are the three best sorts. Along the edge of the terrace was a series of beds filled with Dianthus Allwoodii, the plants having such a profusion of flowers as to appear like an unbroken band of colour. The several varieties were massed and the colour blending was skilfully arranged. The central arrangement was most imposing and took the form of a diamond-shaped bed with a narrow band of turf, and a staging on which were displayed all the best varieties of perpetual-flowering Carnations, including the new George Allwood variety, of a creamy-salmon shade; Chintz, blush mauve, flaked with purple; Laddie, pink; Edward Allwood, scarlet; White Pearl, Wivelsfield Fancy, pink flaked with rose, and Wivelsfield Apricot. There were also vases of the perpetual-flowering Malmaison type, the whole presenting a dainty and imposing exhibit of these most popular flowers.

Mr. C. Engelmann, Saffron Walden, showed great banks and sheaves of Carnations, of the perpetual-flowering type, cleverly arranged as to colour scheme, and all the blooms in perfection of quality. A black background of velvet served to throw the colours into high relief, and a few graceful Palms added just the necessary touch of greenery. Outstanding varieties were Saffron, Tarzan, scarlet; Dora, pink; Mrs. Hamilton Fellowes, purplish; Thor, scarlet; Laddie, pale salmon-pink; White Wonder, and Carola. The Rt. Hon. Lord Lambourne, C.V.O., Bishop's Hall, Romford (gr., Mr. H. Cunningham), has a very charming group of Carnations staged on a three-tier platform covered with black velvet. There were many vases of the perpetual-flowering type, but the most conspicuous were the large Malmaison blooms for which Bishop's Hall Gardens are famous.

Sir William Cain, Bart., Wargrave House, Wargrave, contributed a group of pot plants of Carnations, both perpetual-flowering and Souvenir de la Malmaison types. The plants exhibited the finest culture and presented a wealth of beautiful flowers. The most imposing feature of this fine group was a batch of the old Prince of Wales Malmaison variety.

Messrs. Wm. Cutbush and Son, Barnet, showed Carnations in association with their large flora

ibit. The use of fancy baskets on tall stands
de a pleasing feature and gave lightness to
group, the centre-piece being a big basket
the scarlet Peerless variety, crowned with a
ceful Palm. The Carnations on the ground
e bedded in a mass of fine Ferns.

Ir. James Douglas, Great Bookham, showed
erb border Carnations; every bloom was a
ice specimen. Many were of exquisite
grance, especially Scarlet Clove, White Clove,
ple Clove, Wonder Clove, scarlet, and Rose
ve, varieties of a series of the old Clove
e in distinct colours. Amongst others were
so, orange ground with violet markings;
kham Belle, yellow ground with slaty-puce
kings; Highland Mary, canary yellow ground
a bright rose markings, and Bookham Salmon.

lessrs. Stuart Low and Co., Enfield, dis-
yed choice Carnations in beautiful vases on
ıds, with Palms and Ferns interspersed.
y had their own novelties in splendid con-
on, including Eileen Low (see Fig. 139), a
y large bloom of soft clear salmon colour,
ewhat after Laddie, but said to be a better
ver; Sheila Green, a yellow-ground fancy
ked with orange-red, and Reginald Cory,
ving cerise. Laddie, Mikado and White
nder were also conspicuous in a collection of
eral excellence.

essrs. Andrew Ireland and Hitchcock,
ks Tey, showed a new hybrid Dianthus,
ed from Scarlet Beauty Sweet William,
sed with a border Carnation. The colour is
ming—a clear rose-pink, and the flowers
developed on stems almost as stiff as wire,
ut 12 to 15 inches high. The habit is up-
t and compact, and the plant is very free
ering.

essrs. Keith Luxford and Co., Sheering
series, Harlow, made a very pretty group
perpetual-flowering Carnations, the varie-
including such popular sorts as White
l, Bona, Aviator, White Wonder, Mrs. C. W.
d, Cupid and Peerless.

r. G. H. Tauveden, Willaston, also exhi-
d perpetual-flowering Carnations in variety.

r. C. H. Herbert, Acocks Green, exhi-
d his new border Pinks. These flowers are
dainty and most refined in colouring and
eral appearance. Notable sorts were
trude, rose-mauve with purple base; Dickie
on, deep salmon-pink with a darker base;
Queen, pink self; Mrs. G. Walker, rosy-
; Red Indian, Indian red; Fire King, sal-
-scarlet; and Bridesmaid, shell pink with
non at the base of the flower.

Hardy Ferns.

r. Amos Perry, of Enfield, put up a splen-
collection of Hardy Ferns, in which we
d fine specimens of Osmunda regalis purpuras-
, Scolopendrium nobile, the finest of the
t's Tongues, and Polystichum angulare,
y's variety, which is remarkable for its
nse plumose frondage.

Formal Gardens.

lessrs. Kent and Brydon showed a rect-
ular garden with a long pool, in the middle
which was a leaden figure. On each side of
sunk walk were rock borders admirably
nished with dwarf Rhododendrons and
leas, Viburnum Carlesii, and pretty rock
its, such as Veronica gentianoides. At the
of this garden, beneath a fine Plane tree,
e masses of Azaleas against a background
dark Conifers. The orange and yellow of
Azaleas was taken up by the Geums and
ssum in the border. A "Garden of Medi-
on" was provided by Messrs. Wm. Wood
Son. It was of rectangular pattern, with
entral pool into which a figure gazed, and
garden was entered by means of a semi-
ular Oak pergola. Bright colour was inten-
ally omitted in order to give a restful effect.
the far side was a thatched garden-house.

he En-tout-cas Co. showed a sunk garden,
h a central pool edged with Iris sibirica
Funkias. The best feature of this garden
a handsome Oak garden-house with a tiled
f. The large seats on each side seemed
necessary. A pleasantly simple design was
d by the Orpington Nurseries Co., whose
den consisted of paved walks, with a sundial at their point of intersection and long beds of pink Roses cut out in the grass.

Mr. E. Dixon exhibited a rectangular garden, with a paved path leading to a stone terrace. This walk was edged with beds of Azaleas and blue Violas, and, halfway to the terrace, steps descended to a small circular pool. On either side were borders of Lupins. A lawn with clipped Box and Yew trees figured largely in the formal garden laid out by Messrs. J. Cheal and Sons. A paved path ran on each side, and beyond the path was a mixed border. The garden was terminated by a dry wall supporting a bank of evergreens and Maples, at the foot of which was a wall fountain.

Messrs. G. Bunyard and Co. showed a rectangular, paved Iris garden, in the middle of which was an area of water representing an exposed piece of stream, the irregular outline of which did not accord well with the formal lines of the garden. The Irises, however, were charming, and included the pale blue Corida and the velvet-pulple Souvenir de Mme. Gaudichau. At one end was a fine show of Dutch Irises, Eremuri, and Paeonies. An interesting exhibit was made by Mr. Jas. MacDonald, Harpenden, consisting of a formally arranged display of Grasses, comprising some 50 varieties. Considerable contrast was obtained by the use of variegated forms and of distinct varieties, such as Elymus giganteus, Eulalias, and Lagurus ovatus. It is not generally realised what degree of skill is required to bring such Grasses as Eulalia japonica to such perfection as was seen here.

Messrs. Hodson, in addition to their rock garden, showed a rectangular formal garden, with a central semicircular pool. The paths were of York paving, on the outside of which were bricks on edge, giving a good effect. Messrs. J. Piper and Son constructed a square garden in bright red brick, surrounded with clipped Yews, and planted with blue flowers. In the centre of a grass basin was an octagonal pool, also in red brick, which seemed to require toning down.

Mr. G. G. Whitelegg, Chislehurst, had a pleasing collection of Geums and Lupins intermixed with Japanese Maples. The yellow flowers of Geum Lady Stratheden stood out conspicuously, and were well foiled with deep crimson Pyrethrums.

Stove and Greenhouse Plants.

One of the best collections of miscellaneous stove and greenhouse plants that has been shown of recent years was arranged by Messrs. L. R. Russell, Ltd. Well grown Caladiums, Crotons (Codiaeums), Dracaenas, Aralias, Alocasias, and other genera were displayed with great skill and taste. Medinilla magnifica, Impatiens Holstii, Anthurium Scherzerianum, Hippeastrums, Clerodendron Balfourianum, Gloriosa Rothschildiana, and the fragrant Hoya carnosa supplied blooms which were well set off by the handsome foliage plants.

Large Caladiums reminiscent of the days when stove plants were more important than is now the case, were well shown by Messrs. John Peed and Son. These possessed all the charm and value of large, shapely leaves of most delicate or brilliant colouring. In spite of their apparent fragility, such Caladiums are very valuable for furnishing the warm greenhouse during the summer months. Associated with the Caladiums were excellent Streptocarpus, which embraced every possible shade of colour and were of very large size, also Hydrangeas, Liliums, Gloxinias, Hippeastrums and splendid double white and double blue Petunias.

An unusual exhibit in these days was the collection of 400 varieties of succulents displayed by Miss Worth. These were for the most part shown as small pot plants, and while the general effect was somewhat marred by the use of Moss on the staging—an incongruous association apparently required by the authorities—all the plants were full of vigour and illustrated the great diversity of form and type, while gorgeous flowers were provided by several species of Phyllocactus.

The great value of annuals for summer gardening, either in association with perennials, or, as was the case at Chelsea, for solely furnishing the flower garden, was well illustrated by Messrs. Sutton and Sons. The large central space allotted to them in the tent was laid out as a formal flower garden with the beds surrounded by mown turf. The centre beds were filled with Salpiglossis of wonderful beauty of colouring. Messrs. Sutton and Sons have often exhibited splendid plants of Salpiglossis in the past, but on the present occasion they excelled themselves. Nemesias were also of great importance in the garden scheme, as these included large flowered Pale Yellow; Crimson, of deep velvety colour; Twilight, a bicolor flower which has a white tip and inky-violet standard, and Blue Gem, a dainty little variety of cloudy blue colouring. The rich orange flowers of Dimorphotheca aurantiaca provided rich colouring, while a frontal bed of Phlox Drummondii Pink Beauty was a mass of warm rose-pink colour. Viscarias in variety and blue Cornflowers were amongst the other annuals which combined to make such a successful exhibit.

Schizanthus hybrids of a splendid strain were contributed by Mr. Alfred Dawkins. All the many plants were of a desirable compact habit, and bore quantities of well-formed flowers of beautiful colours. Although the plants on view were apparently from mixed seed, several of them, particularly the rose pink, deep rose, and crimson, seemed worthy of varietal names.

A well-arranged group of Calceolaria hybrids and the new white Schizanthus Bridal Veil were set up by Baron Bruno Schroder, The Dell Park, Englefield Green (gr. Mr. J. Shill). The Calceolarias embraced an interesting range of semi-shrubby types bearing good-sized flowers of yellow colouring, some of clear yellow, and others, as in the case of Golden Gem, regularly spotted with crimson. All the plants displayed the highest degree of skilful cultivation.

Trusses of flowers of many zonal Pelargoniums, arranged with their foliage, were displayed by Messrs. Jarman and Co. The excellent collection of varieties included General Wolseley a splendid large-flowered single variety, while Achievement, rose-coloured, was excellent amongst the large trusses of double varieties.

Messrs. Carter and Co. had a very bright display at the Embankment end of the large tent. All along the back, surmounted by elegant Cocos plumosa and other Palms, they arranged splendid banks of Stellata Cinerarias, Salmon Queen Clarkias, and Butterfly strain of Schizanthus, with Antirrhinums of salmon and pink shades. In the foreground were magnificent circular groups of Invincible Gloxinias of erect habit and large, widely spread flowers, herbaceous Calceolarias and large-flowered Cinerarias. These were pleasantly broken by oblong beds of Petunia Rose Queen of splendid colouring, and some excellent double-flowered tuberous-rooted Begonias. A neat grass edging with narrow borders of Ageratum, Pteris and Maidenhair Ferns made a fitting finish to this noteworthy exhibit.

Banks of generous proportions of hybrid Schizanthus, herbaceous Calceolarias, and Cineraria stellata were the dominant features of an imposing display by Messrs. Webb and Sons. All three of these useful greenhouse plants were characterised by excellent strains of good and varied colours. Along the front there were goodly groups of Rhodanthe maculata, double-flowered tuberous-rooted Begonias, Gloxinias, a giant strain of Primula obconica, and particularly elegant plants of Linaria hybrida Excelsior. The graceful little flowers of the last-named plant attracted a deal of admiration, both on account of their charm and delicate colouring.

A large circular group of well-grown Hydrangeas, arranged by Mr. H. J. Jones, made a memorable display in the large tent. There were splendid heads of white, pink and blue varieties, with intermediate shades of these colours. Helge, Parsifal, Krimhild and Satinette of the deep rich pinks, Lille Monillere, Radiant, and Madame Truffaut of the blue shades, and the white Madame Mouillere are a good selection of the splendid varieties. Messrs. W. J. Godfrey and Son's superb strain of Schizanthus grandiflora is very compact and floriferous, and embraces a wide range of good colours. On the other side of their stand Messrs. Godfrey & Son staged many excellent Pelargoniums. Rose of Devon. Lord Bute, The Queen, Mr. Richard Eames, Gipsy and Delightful are the names of a few of the varieties shown.

Vases of cut spikes of zonal Pelargoniums were displayed by Mr. R. J. Case, and these made a welcome display of bright colouring. Amongst the singles were Mr. S. T. Wright, a truss of large pips in which the rose-pink colour has a stippled appearance. Somerset Lass, an excellent scarlet; Dot Slade, pale salmon pink; Western Queen, Apple-blossom pink; and Mrs. A. C. Adams, purplish magenta, are other singles of more than average merit.

Show and Fancy Pelargoniums were splendidly shown by Aubrey F. Wootten, Esq. (gr., Mr. W. Lamson), Downs Road, Epsom. The central mound of Mrs. Lawson, a delicate blush with carmine blotch, the bright pink Cardiff and the blush and maroon Queen Mary, were excellent examples of these valuable greenhouse plants, while all the sorts displayed expert cultivation.

Greenhouse Ferns of such genera as Polypodium, Adiantum, Cibotium and Asplenium, with Platycerium alcicorne, were displayed by Mr. H. N. Ellison, who also had a small collection of Cacti and other succulents.

Although somewhat out of season, the group of Dahlias arranged by Messrs. Carter, Page and Co. is well deserving of note. At this season it was a stupendous effort to have so many plants of the various types in full bloom. Besides providing excellent flowers, illustrating the values of the different types of this indispensable autumn flower, the group served a very useful purpose as a reminder that the present is a good time to procure plants which will provide abundance of bloom this year.

Dwarf plants in quite small pots of the popular Dahlia Coltness Gem, shown by Mr. John Forbes, showed how suitable this brilliant single-flowered variety is for bedding purposes.

Particularly good succulent plants were staged by Mr. Sidney Smith, Enfield. The chief genera were Phyllocactus, Mamillaria, Echinocactus, Opuntia, Cereus, Echinocereus, and Aloes. He also had specimens of Sempervivums, Mesembryanthemums, Echeverias, and Euphorbias

A neat collection of Fuchsias was staged by Mr. E. H. Causer; the chief varieties were Mauve Beauty, Ballet Girl, Scarcity, Fascination, Cupid, and The Doctor. Besides the Fuchsias Mr. Causer showed well-flowered Verbenas. Adjoining their show of Roses Messrs. Wm. Cutbush and Sons massed such Hydrangeas as Directeur Vuillemot, Maréchal Foch, and Helge. Many plants were shown and all bore large and shapely heads of bloom.

Trees and Shrubs.

Rhododendrons and Azaleas were dazzlingly, gloriously beautiful, and these alone would have been well worth braving the mud and rain to see. At this great spring show the public have become accustomed to find Rhododendrons and Azaleas of great merit, but on the present occasion all previous exhibits of these valuable shrubs were eclipsed. The bank of glowing, vibrating colours of the Azaleas exhibited by Messrs. R. and G. Cuthbert was a splendid display. They had countless numbers of trusses of different types, but it was probably the mollis-sinensis hybrids that were the most showy. Of this type quite a number deservedly received distinctive names, such as Apple Blossom, Sunset, Multatuli and Anthony Koster. There were many specimens of Azalea mollis, of which J. C. Van Thol is an excellent example. The vigorous Ghent varieties were equally well represented by standards and bushes, and there were also many varieties of the later flowering Azalea rustica section.

Of necessarily different character, the collection of Rhododendrons arranged by Messrs. Waterer, Sons and Crisp was equally effective. For the most part it was composed of massed varieties of distinct colours. Glowing reds were represented by such sorts as Bagshot Ruby, Brilliant and Corona, while amongst the many good varieties of pink shades were Mrs. E. C. Stirling, Strategist and Pink Pearl. There were also numbers of standards and bushes of Rhododendron fastuosum fl. pl.

A very good group of Rhododendrons, mostly of large bushes, was well arranged by Mr. T. Lewis. The chief varieties were album grandiflorum, White Pearl, Mrs. Milner, Mrs. E. C. Stirling, Mrs. Holford and fastuosum fl. pl. The principal feature of the very effective corner group displayed by Messrs. J. Cheal and Sons were dwarf, floriferous Rhododendrons and Azaleas, and they also arranged excellent bushes of Kalmia latifolia, Caenothus dentatus, C floribunda and Philadelphus varieties. Messrs. M. Koster and Sons had a large bank of Rhododendrons, mostly with their seedling numbers, but there were also named varieties including Mrs. Lindsay Smith, Rosamund, Millais, a showy red variety, and Koster's Brilliant Red Seedling.

Rhododendron cinnabarinum was very well shown by Mr. G. Reuthe, who also showed blooms of the uncommon Magnolia Watsoni, Tricuspidaria lanceolata, Embothrium coccineum, Dipetala floribunda, Deutzia Veitchii, and various Azaleas and Kalmias.

Mr. R. C. Notcutt had a splendid collection of Brooms, both as standards and bushes, and each was particularly well flowered; the most showy was probably Daisy Hill. Even at this late date he was able to show Lilacs, and included large trusses of President Grévy and Waldeck Rousseau. The showy and useful Kamia angustifolia rubra, and Philadelphus Virginal were also excellent in this very fine collection.

Many magnificent branches of the brilliant Embothrium coccineum were displayed by Messrs. R. Gill and Son, who also had equally good branches of Tricuspidaria lanceolata and Drimys Winteri, Clianthus puniceus and Rhododendrons, particularly R. Nuttallii. The Donard Nursery Co. had a very interesting collection of uncommon shrubs, which included Pinus sylvestris variegata, Athrotaxis cupressoides, Olearia stellulata, Pittosporum Mayi, Silver Queen, and P. Tobira variegata. The vivid Embothrium coccineum and Tricuspidaria lanceolata were also well represented.

In a large and valuable group, arranged by Messrs. Hillier and Sons, the plants of the hardy Banana (Musa Japonica, Syn. Basjoo) attracted a deal of attention on account of the unusual appearance of their luxuriant foliage. A splendid branch of Eucalyptus coccifera, bearing numerous flowers, was also greatly admired. Viburnum plicatum, Ozothamnus rosmarinifolius, a number of Wistarias, Brooms, Rosa Willmottiae, and various Conifers were all of interest. The group included some excellent spikes of Eremurus and the edging of floriferous, little bushes of Daphne Cneorum added to its attraction.

In the tent the Yokohama Nursery Co. had a fascinating collection of dwarfed Japanese trees and shrubs, principally of Wistarias, Acers, Cypresses, and Larches of apparently great age. In the open, Messrs. Fromow and Co. had a collection of the Japanese Maples they grow so well and in such great variety.

Under the trees in the Elm Avenue Messrs. Wallace and Co. had a pleasant arrangement of Japanese Maples and Azaleas. Amongst the latter there were particularly good standards of Ghent varieties and hybrids, with glowing masses of dwarf mollis Azaleas. In the tent Messrs. Wallace and Co. had a particularly bright display somewhat in the form of a Rhododendron garden, where very floriferous bushes of this shrub, Ghent and Mollis Azaleas, were effectively massed and interspersed with the group of their unique collection of Liliums. They trained against a tent-pole a good specimen of Rhododendron cinnabarinum.

Miscellaneous shrubs were displayed in the open by Messrs. L. R. Russell, Ltd. Ceanothus Veitchianus, C. dentatus, various Brooms and Ghent Azaleas were the chief flowerin subjects, while amongst those with ornament foliage were a goodly variety of Japanese Maple Tree Ivies, Escallonia exoniensis, and su climbers as Vitis Henryana and V. Coignetia Although not in flower, a well-grown standa Pomegranate and an exceptionally tall Loqu attracted attention. In the tent Mr. Russe had another group of hardy shrubs.

A neat and especially effective display w made by Messrs. A. Charlton and So Japanese Maples, both as standards and bush were highly coloured. Acer Negundo variega and Acanthopanax pentaphyllum folius vari gatus and the variety argentea marginata we represented by well-marked specimens. Cea thus Gloire de Lorraine, Ceratostigma Wi mottiana, various Brooms and Rhododendro amongst the flowering species added flo brightness.

Trained Bay trees of good quality and in variety of conventional shapes were exhibit by Messrs. Robert Green, Ltd., while Mess Wm. Cutbush and Son set up near by a la collection of excellent Topiary specimens, pr cipally fashioned in green Box, although Y and Bay Laurel were also used. Mr. R. Felton displayed half a dozen or so excelle pyramids of Eurya japonica variegata.

A pretty collection of Rhododendrons, wi a few conifers, was displayed by Mess Fletcher Bros. The principal Rhododendr were Marchioness of Tweedale, Helen Pa Helena, and Frederick Waterer. The Conife were mostly the erect growing Cupress Lawsoniana Fletcheri and the new compa form of that variety. The latter makes a qu dwarf, round bush of much compressed folia which gives it a Juniper-like appearance. M J. Klinkert displayed his excellent specimens the form of a Topiary garden. Along ea side of the central path he alternated co with balls and disposed the spirals, peacoc living chairs and other forms on the lawns. the specimens were well trained. and it was successful exhibit of its type.

Fruit.

Messrs. T. Rivers and Son, Sawbridgewort showed pot fruit trees, including Cherries, N tarines, Peaches, Plums and Figs. The n Nectarine John Rivers was included; it is t earliest variety to ripen, being a trifle earli than Cardinal. The fruits are of large size a carry a high colour; a very showy fruit. Oth Nectarines shown were Cardinal Early Riv and Lord Napier. Of Peaches there were we fruited trees of Peregrine, Kestrel and Ea Rivers. The Cherries included Early Riv and Belle d'St. Tronc. All the trees we splendid specimens and well fruited. Mess G. Bunyard and Co., Ltd., Maidstone, show thirty-four dishes of Apples and two of Pea the latter including Bellissime d'Hiver a Uvedale's St. Germain. The Apples were r markably good for so late in the season, ou standing varieties being Norman's Pipp Sturmer Pippin, Heusgen's Golden Reinet Wagener, Lord Hindlip, Lord Burghley, Co Orange Pippin, Belle de Pontoise, Encore a Bramley's Seedling. The exhibit was ve daintily staged, the fruits being shown ornamental mahogany-coloured baskets wi Ferns and Asparagus for decoration. Mess Laxton Bros., Bedford, had a very brig group of Strawberries, both pot plants a gathered fruits. Plants of the variety T Duke were each cropped with a dozen or mo large berries; the oldest fruit is wedge-shape but those that succeed it are round. The n Abundance, of darker colour, is a little later season than The Duke, and the flavour is e cellent. Other sorts shown were Lord Beatt Sir Douglas Haig and Marechal Foch, whi ripen in this order. In open Messrs. Laxto Bros. showed oblique cordons and fan-train Pear trees. They also showed cordon Goo berries, standard Gooseberries, and standa Currants.

Messrs. S. Spooner and Sons, Hounslo showed well-grown Gooseberries and Curra in pots as an outdoor exhibit.

Vegetables.

Hon. Vicary Gibbs, Aldenham House, Elstree (gr. Mr. Ed. Beckett) had the only collection of vegetables in the show. It consisted of more than one hundred dishes and embraced most of the kinds in season and many out of season. The quality, as usual, was superb, and the group ranked as one of the best collections ever exhibited by this famous grower. A different kind of staging was employed than the one Mr. Beckett has set the fashion in for some years past; the wide trellis-work at the back was in good taste and served well to carry brackets, on which were arranged mounds of Cauliflowers, Globe Artichokes, Seakale Beet, Peas, Celery, coloured Beans, purple and white Aubergines, and Marrows. Below these were magnificent Lettuces, Cucumbers, Tomatos, Potatos, Endive, Turnips, Capsicums, Carrots and Radishes; whilst on the table were ornamental and fancy baskets containing Mushrooms, Kohl-rabi, Broad Beans, Tomatos, Oxalis tuberosum and many other kinds. King George spent a considerable time at this exhibit and congratulated Mr. Ed. Beckett on what he described "as a most wonderful exhibit."

AWARDS MADE BY THE COUNCIL.

Awards.

Sherwood Cup for the most meritorious exhibit in the show, to Messrs. Charlesworth and Co., for Orchids.

"Daily Graphic" Cup for the best rock garden to Symons-Jeune, B.H.B.

Cain Cup for the best exhibit by an amateur to Pantia Ralli, Esq., for Orchids.

Allwood Carnation Bowl for the best group of Carnations exhibited by an amateur, to Sir William Cain, Bart.

Gold Medals.—To Messrs. Allwood Bros., for Carnations; Mr. C. Engelmann, for Carnations; Messrs. R. W. Wallace and Co. (and congratulations), for Rhododendrons; Messrs. G. Jackman and Son, for Clematis; Pantia Ralli, Esq., for Orchids; Messrs. Charlesworth and Co. (and congratulations), for Orchids; Messrs. J. and A. McBean, for Orchids; Messrs. James Carter and Co., for water garden; Messrs. Kent and Brydon, for a rock and water garden; Messrs. Dobbie and Co., for Sweet Peas; Messrs. R. and G. Cuthbert, for Azaleas; Mr. R. C. Notcutt, for flowering shrubs; Messrs. G. Bunyard and Co., Ltd., for fruit; Messrs. T. Rivers and Sons, Ltd., for fruit trees in pots; the Hon. Vicary Gibbs (gr. Mr. E. Beckett), for vegetables; Messrs. Blackmore and Langdon, for Begonias and Delphiniums; Messrs. James Carter and Co., for flowering plants; Messrs. Sutton and Sons, for flowering plants; Mr. E. J. Hicks, for Roses; Mr. Symons-Jeune, for a rock garden; Mr. G. G. Whitelegg, for a rock garden; Mr. L. Russell, for stove plants; and Mr H. J. Jones, for Hydrangeas.

Large Silver Cups.—To Sir Wm. Cain, Bt., for Carnations; Mr. James Douglas, for Carnations; Messrs. Barr and Sons, for bulbous and hardy herbaceous plants; Messrs. Sanders, for Orchids; Messrs. Stuart Low and Co., for Orchids; Messrs. W. H. Gaze and Sons, Ltd., for a formal garden; Messrs. Alex. Dickson and Son, for Sweet Peas; Mr. Amos Perry, for Irises, Ferns, etc.; Messrs. Laxton Bros., for Strawberries; Messrs. R. Tucker and Son, for a rock garden; and Messrs. Edward Webb and Sons, for stove and greenhouse plants

Small Silver Cups.—To Mr. J. C. Allgrove, for herbaceous plants and shrubs; Messrs. Bees, Ltd., for alpines and hardy herbaceous plants; Messrs. W. H. Rogers and Son, for alpines and hardy herbaceous plants; Sir Jeremiah Colman, Bt., (gr., Mr. J. Collier), for Orchids; Messrs. Cowan and Co., for Orchids; Messrs. J. Cypher and Sons, for Orchids; Messrs. J. Cheal and Sons, Ltd., for a formal garden; Messrs. R. Bolton and Son, for Sweet Peas; Orpington Nurseries Co., for Irises, etc.; Messrs. B. R. Cant and Sons, for Roses; Messrs Frank Cant and Co., for Roses, Messrs. J. Peed and Sons, for Caladiums, etc.; Mr. Clarence Elliott, for alpines, and Mr. R. Prichard, for alpines.

Silver-gilt Lindley Medal.—To Dr. John MacWatt for Primulas.

Silver-Gilt Flora Medals. — To Mr. J. MacDonald, for Grasses; the Rt. Hon. Lord Lambourne, for Carnations; Mr. G. R. Downer, for Lupins; Maytham Gardens, for Lupins; Messrs. M. Pritchard and Sons, for hardy herbaceous flowers and alpines; Messrs. Bakers, Ltd., for hardy herbaceous plants and alpines; Messrs. Bowell and Skarratt, for hardy herbaceous plants and alpines; Messrs. Maxwell and Beale, for hardy herbaceous plants and alpines; Messrs. Reamsbottom and Co., for Anemones; Messrs. Storrie and Storrie, for Primulas; Mr. F. G. Wood, for herbaceous plants and alpines; Mr. W. Wells, Junr., for herbaceous flowers; Messrs. Flory and Black, for Orchids; Orpington Nurseries Co., for a Rose garden; Messrs. W. Wood and Son, Ltd., for a formal garden; Messrs. Sutton and Sons, for Sweet Peas; Messrs. W. Cutbush and Son, for clipped trees; Messrs. W. Fromow and Sons, for Japanese Maples; Mr. L. R. Russell, for Azaleas and shrubs; The Donard Nursery Co., for new and rare shrubs; Messrs. Hillier and Sons, Ltd., for flowering trees and shrubs; Messrs. M. Koster and Sons, for Rhododendrons and Azaleas; Mr. G. Reuthe, for rare shrubs; Messrs. Dobbie and Co., for Antirrhinums; Mr. Clarence Elliott, for a rock garden; Messrs. Hodsons, Ltd., for a rock and water garden; Messrs. Pulham and Son, for a rock and water garden; Messrs. J. Waterer, Sons and Crisp, for Alpines; and Baron Schröder, for Calceolarias, etc.

Silver-gilt Banksian Medals.—To Messrs. K. Luxford and Co., for Carnations; Chalkhill Nurseries, for hardy perennials, Mimulus, etc.; Messrs. J. Cheal and Sons, for rock and hardy herbaceous plants and Dahlias; Messrs. G. and A. Clark, Ltd., for hardy flowers; Mr. G. Reuthe, for herbaceous plants; Messrs. Waterer, Sons, and Crisp, Ltd., for hardy herbaceous plants; Messrs. W. Artindale and Sons, for hardy herbaceous plants; Messrs. R. H. Bath, Ltd., for hardy herbaceous plants; Messrs. K. and J. Hill, for Alpines; Mr. G. W. Miller, for hardy plants; Mr. V. C. Vickers, for Aquilegias; Messrs. Mansell and Hatcher, Ltd., for Orchids; Mr. E. Dixon, En-Tout-Cas Co., Messrs. R. Neal and Son, these three for formal gardens; Messrs. Andrew Ireland and Hitchcock, for Sweet Peas; Messrs. Charlton and Sons, for trees and shrubs; Messrs. Waterer, Sons, and Crisp, for Rhododendrons; Messrs. G. Bunyard and Co., Ltd., for Iris garden; Aubrey Wootten, Esq., K.C., for Show Pelargoniums; Messrs. Waterer, Sons, and Crisp, for Roses; Messrs. T. R. Hayes and Sons, for a rock and water garden; Messrs. Carter Page and Co., the Misses Hopkins, Messrs. Oliver and Hunter, Messrs. W. H. Rogers and Sons, and Mr. G. G. Whitelegg, these five for alpines; Mr. E. Dixon, for a miniature garden; Messrs. W. Cutbush and Son, for Hydrangeas and Carnations; Mr. S. Smith, for Cacti, etc.; and Miss Worth, for succulent plants.

Silver Lindley Medal.—To Messrs. H. Chapman, Ltd., for Irises.

Silver Flora Medals.—To Mr. C. H. Herbert, for Pinks; Messrs. Stuart, Low and Co., for Carnations; Messrs. B. Ladhams, Ltd., for herbaceous plants; Messrs. G. Gibson and Co., for herbaceous plants, including new Lupins; Messrs. Rich and Co., for herbaceous plants; Messrs. Hodsons, Ltd., for a formal garden; Mr. J. Stevenson, for Sweet Peas; Mr. H. Dixon, for Orchids; Mr. A. Dawkins, for Schizanthus; Messrs. Godfrey and Son, for Pelargoniums, Schizanthus, etc.; Mr. G. G. Whitelegg, for an Iris garden; Messrs. Paul (Waltham Cross), Messrs. W. Cutbush and Son, Mr. G. Prince, the Rev. J. H. Pemberton, Messrs. J. Piper and Son, these last five for Roses; Mr. H. Hemsley, for rock and alpine plants; Mr. E. Scaplehorn for alpine plants; Messrs. R. Tucker and Sons, for alpine plants; and Messrs Stuart Low and Co., for stove plants and New Holland plants.

Silver Banksian Medals.—To Maytham Gardens, for a herbaceous border; Mr. C. H. Taudevin, for Carnations; Mr. F. Gifford, for Paeonies; Mr. H. T. Pitt, for Orchids, Messrs. J. Piper and Son, for a formal garden; Messrs. Fletcher Bros., for Rhododendrons and Conifers; Messrs. J Klinkert, for Topiary; the Yokohama Nursery Co., for Azaleas and dwarf shrubs; Messrs. J. Cheal and Sons, Ltd., for flowering and foliage shrubs; Mr. T. Lewis, for Rhododendrons; Messrs. E. Paul and Co., for Roses; Messrs. C. Turner, for Roses; Messrs. W. Cutbush and Son, for a rock garden; Messrs. J. Piper and Sons, for alpines; Mr. W. Wells, junr., for alpines; Mr. H. N. Ellison, for Cacti; Messrs. Carter, Page and Co., for Dahlias; Mr. R. J. Case, for Pelargoniums; Mr. H. Clarke, for Violas; Messrs. J. Forbes (Hawick), for Violas, Pelargoniums, etc., and Mr. W. Yandell, for Violas.

Bronze Flora Medals.—To Messrs. Andrew Ireland and Hitchcock, for new Dianthus; the Preston Hall Nurseries, for Sweet Peas; Messrs. R. Green, Ltd., for Bay trees; and Mr. E. H. Causer, for Fuchsias, etc.

SOCIETIES.

WOMEN'S FARM AND GARDEN.

A special meeting of the Women's Farm and Garden Association was held at Bute House, South Audley Street, W.1, on Monday, May 28, 1923, at 5 p.m. Lord Ernle, formerly Minister of Agriculture, was in the chair, supported by Lord Lambourne, President of the Royal Horticultural Society; Sir Robert Sanders, Minister of Agriculture; Sir Frederick Keeble, F.R.S., Professor of Botany at Oxford University; Lady FitzGerald; the Hon. Mrs. Norman Grosvenor; Mrs. Wilton Allhusen; and Kathleen Viscountess Falmouth.

Lord Ernle, in opening the meeting, said that the Women's Farm and Garden Association had earned during the war the gratitude of the nation by its services in the cause of food-production. During one "black fortnight" in 1917, one out of every four ships bringing food to this country was sunk, with the result that the country became for a time almost dependent upon home production. The extra food thus required could not have been grown without the aid of the women of the country, in view of the fact that more than a third of the able-bodied young men were withdrawn for the army. The Association began in 1915 to give special training to women for work on farms, and their general efficiency enabled them to break down the prejudice against female labour, which at first existed among farmers. In the absence of such special training, the success of the women would have been much less rapid. The Board of Agriculture took up the idea of supplying female labour to farmers, and in response to an appeal for volunteers, 45,000 applications were received. He hoped that the memory of the services rendered during the war, and pride in the success then achieved, would induce many of those present to help the movement by becoming Associate Members of the Society.

Sir Robert Sanders, in an amusing speech, traced the connection of women with agriculture and husbandry from the earliest dawn of history. He said that during the war, what struck him most was the way in which the French women worked in the fields everywhere as a matter of course. In this country many women were now beginning to take up country pursuits as a means of livelihood, and at the recent Bath and West Show a lady exhibited some prize black sheep she had reared. The Ministry of Agriculture was anxious to encourage women to take up work on the land, and scholarships were awarded in various parts of the country enabling women to be trained in properly equipped institutes. Everyone was grateful for the part played by the Association during the war, and the work that it was still doing deserved every encouragement.

Lord Lambourne said that the part played by women in Agriculture during the war had filled him with amazement and delight. Of course they had not all proved satisfactory, but most had coped successfully with what was admitted to be hard and in some cases unpleasant work. At the present time there was a great opening for women in horticulture; but if they wished their work to be a source of profit to themselves and their employers, it was necessary to do it as well as men would. Everything should be made profitable, even a garden, and women should be prepared to give equally valuable work with the men they were replacing. He had every hope of a great future for the Association.

Sir Frederick Keeble, who spoke in place of Lady Keeble, as she was unable to be present, said that he thought there was a class of women who took a genuine pleasure in country pursuits quite apart from any idea of enriching themselves. He hoped that this type of woman would increase in numbers, and that a time would never come when the country was considered by educated people simply in the light of a holiday place, to be visited for short periods and then left alone. Plenty of opportunities should be provided for those people who were really happier engaged on the land than living in towns. If the Association provided these opportunities, it would be performing an invaluable service to the community. In horticulture, "a little learning" was not a "dangerous thing." The land girls had made good, many of them after a very short apprenticeship, and he confidently hoped that the Association would do as good work in the future as it had done in the past.

Votes of thanks to the chairman and speakers, and to Lady FitzGerald, who had kindly lent her house for the occasion, were then proposed and carried, which terminated the meeting.

ROYAL CALEDONIAN HORTICULTURAL.

May 15.—The ordinary monthly meeting of this Society, which was adjourned from May 1 on account of the death of the president, Mr. J. W. M'Hattie, was held at 5, St. Andrew Square, Edinburgh, on May 15, Mr. W. G. Pirie, vice-president, in the chair.

The chairman made sympathetic reference to the death of Mr. M'Hattie, and alluded to the great loss which the Society and horticulture generally had thereby sustained, and it was agreed to record this in the minutes, and to send an extract therefrom to Mrs. M'Hattie.

A paper was read by Mr. Robert L. Scarlett, C.D.A., Sweethope, Inveresk, on "The Ways of Market Men." Sweet Peas were exhibited by Mr. D. Armstrong, The Drum, Gilmerton, and Schizanthus, by Mr. J. A. Sword, Inveralmond, Cramond.

TRADE NOTE.

There was a capital attendance at the recent meeting of the Technical Committee of the Chamber of Horticulture, Mr. F. O. Mosley presiding.

The Secretary reported that a large number of county superintendents and instructors had accepted the committee's invitation to act as honorary correspondents.

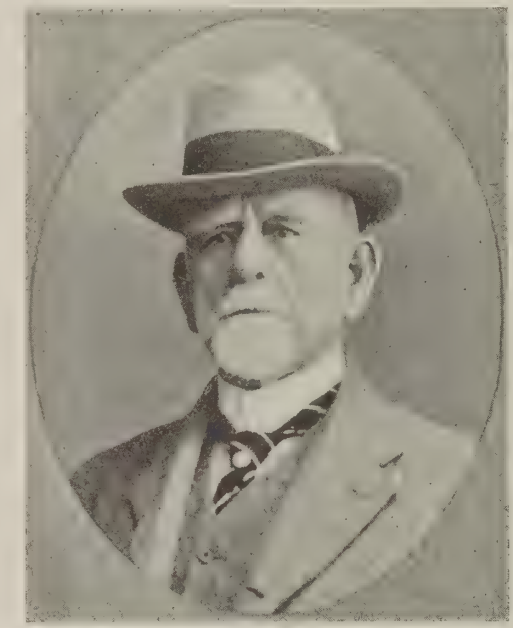
The committee then proceeded to deal with the numerous reports and inquiries for advice from correspondents. The reports show that conditions generally are normal with the exception of serious attacks of caterpillar, especially in the southern counties. The committee recommend spraying with lead arsenate, a treatment which is, of course, well known, but all those using this preparation are advised to demand a standard content, and it is recommended that a spreader be used so as to apply a fine mist spray at a strength of 5 lb. of arsenate to 100 gallons of water.

The subject of leaf scorch was discussed at length, this trouble apparently being on the increase, and correspondents are being asked to supply further information upon which the committee will no doubt be able to supply some useful advice. Good results are reported as to the use of carbolineum as a winter wash for insects' eggs.

The question of the organisation of this committee with a view to a wider distribution of its recommendations was discussed, and the committee wish it made known that any applications for advice as to the treatments for pests and plant disease troubles will be welcomed and prompt replies given. Such applications should be made to the Secretary of the Chamber, giving the fullest information as to the trouble, and accompanied, wherever possible, with specimens.

Obituary.

Owen Thomas, V.M.H.—Our readers will be sorry to learn that the veteran horticulturist, Mr. Owen Thomas, V.M.H., who was for very many years gardener to Queen Victoria, passed away on Sunday evening last, after a severe illness of over seven weeks' duration. The late Mr. Thomas was born near Bodorgan and reached the age of 79 years in December last. During his long career he was employed on the Bodorgan Estate in the Isle of Anglesey, Messrs. F. A. Dickson and Sons' nurseries at Chester, Little Aston Hall, Messrs. James Veitch and Sons' nursery at Chelsea, and Drayton Manor, but it was when gardener at Impney, Droitwich, that he came into prominence. Subsequently he became successor to Mr. T. Speed in charge of the famous gardens at Chatsworth, whilst in 1891 he succeeded Mr. T. Jones as head gardener at Windsor. An appreciation of Mr. Thomas, giving details of his career, appeared in our issue of September 16, 1922, p. 160. Mrs. Owen Thomas survives her husband, and there are also three sons and two daughters to mourn his loss.



THE LATE OWEN THOMAS.

ANSWERS TO CORRESPONDENTS.

Names of Plants: *G. H. W.* 1, Aesculus flava; 2, Prunus Padus (Bird Cherry); 3, Euonymus europaeus (Spindle-tree); 4, Staphylea colchica (Bladder Nut); 5, Jasminum humile; 6, Berberis vulgaris var.; 7, Cornus alba var. sibirica variegata.—*E. S.* Plantago Coronopus (Bucks-horn Plantain).

Perpetual-Flowering Carnations: *J. F. S.* The second stopping of your Carnations should be done at short intervals until the end of June. By stopping one or two shoots at a time on each plant, at the fifth pair of leaves, you will prolong the flowering season. Strong-growing varieties, such as Carola and Baroness de Breinen, should only be stopped once to obtain flowers in October and November.

Renewing the Lower Part of a Yew Hedge: *F. G.* The only way to restore vigour to the lower part of a Yew hedge that is healthy in the upper parts is to reduce the height, cut out dead wood, fork up the surface of the ground about the base of the hedge, and apply food material in the form of well decayed farmyard manure or liquid cow manure. If such manure cannot be procured a dressing of fish manure may be applied at the rate of one pound to three square yards. The cutting back should be done at once.

School of Landscape Gardening: *J. A.* There is a school of landscape gardening at Lancaster; particulars may be obtained from Mr. Thomas H. Mawson, Caton Hall, near Lancaster.

Seedling Gorse: *W. H.* It is desirable to remove the tops of seedling Gorse when the shoots are about two inches high, and again once or twice when they have made two or three inches more growth. With seedling Gorse, in particular, it is important to lay the foundation of good bushy plants by stopping them when young. Plants propagated from cuttings break better naturally, but these also are often improved by stopping.

Spruce Aphis on Picea pungens: *R. W. R.* The specimen received for examination was not Abies Lowiana, but Picea pungens. It was badly infested with Spruce aphis (Aphis abietina). This insect is doing a good deal of harm in many parts of the country on various kinds of Spruce, particularly on Picea pungens and P. sitchensis. Isolated trees should be sprayed on several occasions at intervals of six days, using a paraffin wash made by dissolving one pound of soft soap in two gallons of boiling water, then, whilst hot, thoroughly incorporating a gallon of paraffin making up to sixty gallons with clear water before use. The shoot of Cedrus atlantica var. glauca may have been injured by the same insect for some were found on the buds, but there was also a fungus present on some of the leaves. The tree should be carefully examined to find out whether the small green fly is present or whether those found on the specimen received for examination had migrated from the Spruce during transit. If present the tree may be sprayed with the paraffin wash. In some places Aphis abietina is destroying large plantations of Sitka Spruce.

Vine Unhealthy: *E. F.* The shoots appear to have been scorched by the sun; their unhealthy appearance is not due to organic disease. Vine leaves are very liable to be scorched by hot sunshine if there is too much condensed moisture in the house during the night, and any delay occurs in not admitting a little air in good time in the morning, especially if the sun breaks out suddenly. It would have been much better to have covered the outside border with light litter and leaves during the winter, and dressed the border with farmyard manure from June onwards, when the roots were active and the vines in need of manurial support. Maintain a little warmth in the pipes on cold nights for a few weeks, and leave the top ventilators open a trifle until the weather improves, when the trouble will soon disappear.

Water From a Stokehole: *E. A.* It seems unlikely that the water from a tank in a stokehole would be contaminated with sulphur to such an extent as to cause injury to your plants. The scalded appearance of some of the leaves and the curling of others may be due to sulphur fumes entering the house through the aperture in which the pipe connected with the tank is led. See that any opening there may be is blocked tightly. With regard to the water being from chalk hills, this might result in a deposit on the leaves and fruit after syringing, but it would only be likely to cause disfigurement and not injury. If you suspect the water is contaminated with injurious gases, cover the tank with a tight-fitting lid.

Communications Received.—E. B.—G. H. W.—G. F. R.—A. S.—Brading—S. A.—J. B. MacL.—C. C.—J. C. N. F.—S. B. B. M.—G. I.—F. W. J.—Rev. J. B. H.—T. B. A.—H. M.

THE

ardeners' Chronicle

No. 1902.—*SATURDAY, JUNE* 9, 1923.

CONTENTS.

ine garden—
'lpine plants at Kew 319
ampanula raddeana 319
oks, notices of—
ottings from a Gardener's Note-book 315
The Ferns 315
ceolaris, hybrid .. 315
elsea Show, the .. 314
wson, the late Mr.
lackson, memorial to 313
ardeners' Chronicle "
eventy-five years ago 315
deners' wages .. 323
den notes from S.W.
Scotland 319
rden substitute for farm yard manure, a 322
ild of Blind Gardeners 314
ckie, Dr., honour to 314
lon fruits cracking and splitting .. 323
ill, Patrick 320
ituary—
Fowler, Canon .. 326
Thomas, Owen .. 326
chid notes and gleanngs—
Brasso-Laelio-Cattleya Queen of the Belgians, Low 'svar. 321
ypripedium Fletcherianum var. Antinea 321
Odontioda Bantingii 321
Peas 323
Plant names, puzzles in 323
Propagation of "difficult" plants.. .. 318
Rock garden? What is a 323
Rose, the Christmas .. 317
Societies—
Bath and West of England 324
Kew Guild 324
Manchester and North of England Orchid 324
Newcastle and District Horticultural 325
Royal Horticultural 325
Wakefield and North of England Tulip.. 234
Thomas, the late Mr. Owen 314
Trees and shrubs—
Cistus ladaniferus.. 317
Cytisus purpureus incarnatus.. .. 317
Deciduous Azaleas .. 317
Vegetable garden—
Globe Artichokes .. 322
Potato trials at Droitwich 322
Weather forecasts, official 314
Week's work, the .. 316
Whitton, Mr. James .. 314

ILLUSTRATIONS.

nual flowers at Chelsea Show, Messrs. Sutton & Sons' exhibit of 315
npanula calcicola 320
ntiana Hopei 323
arvillea Bees' Pink 318
and water garden at Chelsea Show exhibited by Messrs. J. Carter & Co. 317
ontoglossum crispo-solon var. Carmania 321
mula chrysopa 319
ododendron Pink Shell 325
itton, Mr. James, portrait of.. 314

ERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 58.2°.

UAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 6, 10 a.m.: Bar. 30.1; temp., 59°. Weather—Fair.

The Chelsea Show.

All who are solicitous for the reputation of British horticulture may look back with satisfaction on the Chelsea show of 1923. The exhibits monstrated that British growers have got ce more into their pre-war stride, have ade up the lee-way inevitably lost during war, and have become—taking them all und—the finest cultivators in the world. e popularity of the Chelsea show is, in elf, a recognition of this fact; for although rtain people go to Chelsea because it is stomary for people to go there, the majority in a spirit of connoisseurship, with the ention of observing, criticising and learn- about plants and their cultivation. It ks, therefore, as though the Royal Horti- ltural Society may rely on continued and reasing support in its efforts to assist rticulture. If, as we think, this is the se, it certainly behoves the Society to lose time in reviewing the situation and mak- , so far as is possible, arrangements ich will secure for the Chelsea show the ntinued and increasing measure of public pport which it deserves. Until it was monstrated beyond doubt that the post-war ows were destined to obtain a very large asure of popular support, the Society ld not well have undertaken the financial ks attendant upon making permanent pro- ion of a show ground which should be not only attractive in itself, but also to the largest possible extent weatherproof. The two disastrously wet days which have occurred during recent Chelsea shows have demonstrated alike the drawbacks of the Chelsea grounds, as they are at present, and the need for providing against the contingency of wet weather. Enthusiasts may be heroic upon occasion, but few care to make a habit of heroism, and after the experience of this year, wet weather next year is likely to affect attendance very acutely. For we think that not many of those who tramped over wet ground to the congested shelter of the tents, where the ground was less wet, are likely willingly to repeat the experience. It is as easy as it is unprofitable to grumble, and few of those who have recounted their experiences have done so in any grumbling spirit. But everybody will agree that it is desirable that every possibility of mitigating the discomfort attendant on wet weather should be explored by the Council of the Royal Horticultural Society. This question and that of increased accommodation for the fortnightly shows will, we hope, engage their immediate and careful attention. When, greatly daring, the Royal Horticultural Society built the present hall, there were those who saw in such enterprise a large measure of rashness. Events have falsified the predictions of pessimists. With the increasing importance and popularity of horticulture, the present accommodation for the fortnightly shows is, upon occasion, inadequate. At the more important of these shows a hall several times the size of that at Vincent Square would be none too large. These two questions—that of a larger permanent home and that of a more weatherproof Chelsea show—will, we hope, be considered very closely by the Council. It may be that the difficulties in the way of remedying congestion at fortnightly shows and of safeguarding visitors to Chelsea against the inclemencies of the weather may prove insuperable. This, however, can only be determined by a close and careful inquiry and by a reconsideration of policy. Although it has many commitments, all of which are, in our opinion, conducive to the advancement of horticulture, the Society possesses the resources, both financial and of ability for organisation, to undertake a bold scheme. As to minor provisions—which might be made to give protection to visitors to Chelsea from the worst effects of the weather—they also deserve and are, no doubt, receiving immediate consideration. Whatever the weather, it should be possible to make such arrangements that people may go reasonably dry shod once they reach the tents, and that the concourse of visitors should be constrained by carefully organised means, once it reaches the tents, to "move on" in a predetermined direction. But although these minor matters of organisation claim very emphatically the further consideration of the Council, it is the larger questions which we have raised which most appeal to us. The solution of them is not easy, and will require anxious thought; but if it be possible to find the solution, the result will undoubtedly be to enhance yet further the prestige of the Society and to contribute in emphatic manner to the advancement of British horticulture for which cause the Royal Horticultural Society has already done so much.

The Late Mr. Owen Thomas.—The memorial service to the late Mr. Owen Thomas was conducted by the Rev. Maynard, Vicar of West Ealing, in the beautiful Church of St. Stephen's, on Thursday, the 31st ult., the same church in which, almost exactly sixteen years ago, the funeral service of the late Dr. Maxwell Masters was held. There were a few horticulturists present, including Mr. G. Ingram, representing Sir Harry J. Veitch, and the Gardeners' Royal Benevolent Institution, Mr. John Heal, Mr. William Crump, Mr. G. F. Tinley, representing the *Gardeners' Chronicle* and the Horticultural Club, Mr. James Hudson, representing the Royal Horticultural Society, and Mr. W. B. Gingell. The remains were subsequently interred in the Westminster Cemetery, West Ealing.

Association of Economic Biologists.—The annual field meeting of this association will be held at Cambridge on Friday, June 15, 1923. A visit will be made to the School of Agriculture, where the laboratories will be inspected and investigations in progress on animal nutrition and physiology will be demonstrated. Lunch will be taken at the National Institute of Agricultural Botany, where the laboratories, seed testing station, and field trials of agricultural crops will be inspected. After tea a visit will be paid to the University Farm and Plant Breeding Institute, when investigations in progress on cereal hybridisation will be demonstrated.

Official Weather Forecasts.—The Air Ministry announces that farmers and others whose business is affected by weather conditions may obtain a forecast of the weather for the night and following day without charge by ringing up any telephone exchange in the evening after 5 o'clock. To meet the needs of those who are not in connection with the telephone system daily forecasts will be dispatched by telegram to subscribers. These forecasts are normally issued in the afternoon to cover the weather of the following day, but forecasts for the same day can be issued in the early morning if desired. For these telegrams a fee of 6d. per week plus telegraphic costs (calculated on an average of 1s. 3d. per message) is charged. Another type of forecast which is sent by telegram gives notifications of the setting in of spells of fair, settled weather and of their break up. These telegrams are not issued on regular dates, but as called for by the conditions. The charge made is 6d. for each forecast in addition to the cost of telegraphy. Those desirous of obtaining forecasts should communicate with the Director of the Meterological Office, Air Ministry, Kingsway, London, W.C.2, enclosing a postal order or a cheque to cover the cost of the messages required.

Guild of Blind Gardeners.—The success which has already attended the efforts of this Guild to show that blind people are able to take a keen interest in the cultivation of the garden, has induced the Council to make an effort to establish a special training centre for blind gardeners. Necessarily this will have to begin in a small way, and the modest sum of £500 is considered sufficient with which to make a start. All those who are interested in the education of blind people in the art of gardening are invited to subscribe to this fund. The Hon. Secretary is Mr. C. E. Rose, 23, Daleham Gardens, Hampstead, N.W.3.

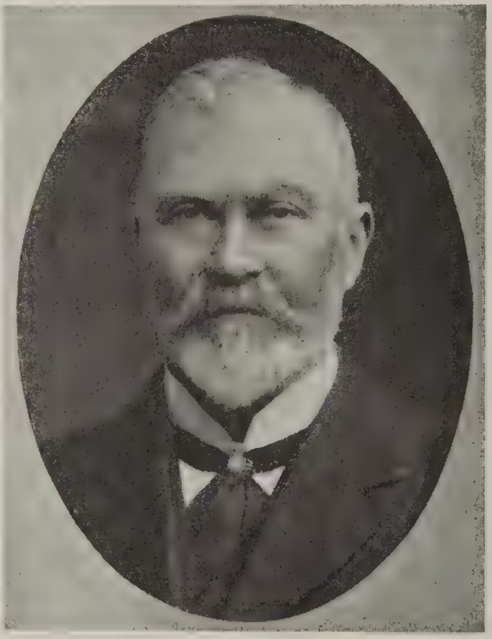
Honour to Dr. Mackie, of Rhynie Cherts Fame.—A large and representative gathering of the leading citizens of Elgin met in the Station Hotel on Friday evening, June 1, and entertained to a complimentary dinner, Dr. William Mackie, to signalise the honour recently conferred on him by the University of Aberdeen, which made him a Doctor of Laws in recognition of his scientific work. Lord Provost Forsyth presided, and in proposing the health of Dr. Mackie, paid warm tribute to his scientific attainments. About twenty years ago. Dr. Mackie made his mark as a scientific thinker when he published his book, *Sand Grains*. Some years ago Dr. Mackie added greatly to his reputation as a geologist, when, after long and protracted investigation, he discovered in the Cherts at Rhynie, Aberdeenshire, new geological formations which never before had been anticipated, and by which he was hailed as a scientific thinker of the first order. Dr. Mackie, replying, said he had been greatly touched by the feeling of delight with which the announcement was received by his friends. The Lord Provost had been good enough to refer to some of the research work in which he (Dr. Mackie) had been engaged. The "Elgin Sand Stones" were the subject of his first published paper near thirty years ago. But the subject was not yet exhausted, and he had quite a large amount of interesting results that had yet to be published. Then there was the discovery of the Rhynie Cherts. That by most people would be classified as a piece of good luck, but it was not quite so simple as it looked; it was not exactly like going into the street and picking up an odd sixpence that someone had dropped. In the hands of the specialists, the fossil plants in these Cherts had opened up quite a wide field, and thrown unexpected light on the development of plants generally, and also regarding the conditions under which the old red sand stones were laid down. These Cherts were really very old. They indicated the conditions of things when they were first formed; they really represented a peat moss of old red sand stone time, and were certainly much older than Tutankhamen, though to the man in the street they did not possess the same interest as did that ancient Pharaoh's tomb. Human interests appealed to most men, and he was not sure but that geologists were the most ideal humanists. The author who said "that in the dignified procession of the universe man is a recent, somewhat vulgar, and perhaps ephemeral incident," probably came nearer the mind of the average geologist than they were perhaps aware. The proceedings throughout were very enthusiastic, and reflected the warm and kindly feelings entertained towards Dr. Mackie by his "ain folk."

Gardeners' Royal Benevolent Institution.—Owing to the promise given early in the year by his father to preside at the 78th Anniversary Festival of the Gardeners' Royal Benevolent Institution, the Earl of Plymouth has consented to take the chair at the dinner which will be held at the Hotel Victoria on June 28 next.

Hybrid Calceolarias and Schizanthus from The Dell.—Special reference was made on pp. 305 and 309 in our issue of June 2, to the new hybrid Calceolarias shown by Baron Schröder, from The Dell, Egham, but on p. 309, Mr. Shill's name was mentioned as the gardener, whereas, as most of our readers are aware, Mr. J. E. Shill is Baron Schröder's clever Orchid grower, and Mr. E. J. Henderson is the gardener. Mr. Henderson has devoted considerable attention to the raising of new plants, and has been particularly successful with Chrysanthemums, as a reference to our issues of last autumn will show; the new Calceolarias shown at Chelsea promise to be useful garden plants, and Schizanthus Bridal Veil from the same gardens attracted a great deal of attention.

Legacy to a Gardener.—Mr. Daniel Barley Balding, of The Beeches, Royston, Hertfordshire, who died on April 8, bequeathed the sum of £100 to his gardener, Mr. Charles Pigg.

Silver Leaf Order of 1923.—Fruit growers are doubtless aware that in order to check the more rapid spread of Silver Leaf Disease, which has done much damage throughout orchards in this country, the Ministry of Agriculture and Fisheries issued an Order in 1919 (Silver Leaf Order of 1919) making it obligatory on growers to cut out and destroy all dead Plum trees and all dead wood of Plum trees before April 1 in each year. Whilst much dead and infected wood has been destroyed during the last three years, the Ministry has in virtue of the experience gained during this period and the knowledge of more recent research, deemed it necessary to make some changes in the Order. The matter has been considered by the Ministry's Horticultural Advisory Council, and acting on the advice of that Council, the Ministry has now made an Order under the above title, which came into effect on June 1, 1923, and revokes the previous Order. This new Order requires that in future the work of destruction of dead trees and dead wood must be done in the case of Apple trees as well as Plum trees, whilst the date laid down for completion of this work is July 15, in each year, instead of April 1. Growers are strongly recommended to cover with anti-fouling paint, white paint, or tar, all wounds of Apple and Plum trees, whether made by cutting or pruning, or in any other way. Such wounds are particularly susceptible to the entry of the fungus, Stereum purpureum, which is the cause of Silver Leaf, and if they are left exposed there is a great risk of infection.



MR JAMES WHITTON, V.M.H.

Mr. James Whitton, J.P., V.M.H.—The retirement, on May 31, of Mr. James Whitton, Director of Parks and Botanic Gardens, Glasgow, affords a fitting opportunity to give a sketch of his career and achievements. He was born in 1851 at the Gardens, Methven Castle, Perthshire, where his father was head gardener for almost half a century. After serving as apprentice and journeyman at Thirlstane Castle, he went as journeyman to Glamis Castle. Early in 1872 Mr. J. Whitton was promoted to be foreman, and remained at Glamis until the autumn of 1876, when he was appointed gardener to the late James Houldsworth, Esq., of Coltness, Wishaw, where he remained for 11 years. On the death of Mr. Johnston in October, 1887, Mr. Whitton became gardener at Glamis, a position he held until early in 1893, when, with the approval of his noble employer, he applied for the superintendentship of the Glasgow Public Parks, and, out of about 100 applicants, was selected for the appointment. That the choice of the Corporation was fully justified has been shown by the improvements and extensions carried out during the term of thirty years during which Mr. Whitton has held the appointment. In 1902, when the late Mr. Daniel Dewar resigned the curatorship of the Botanic Gardens, the duties of the post were handed over to Mr. Whitton. More recently, the Corporation, with the view of improving the status of the department, conferred upon Mr. Whitton the fully deserved title of "Director of Parks." Glasgow has no fewer than 31 parks, with about 100 open spaces, children's playgrounds, etc., for which the Director of Parks is responsible. When Mr. Whitton was appointed superintendent there were only five parks and about a score of open spaces. Now the Glasgow parks are universally recognised as models of their kind and the organisation and systems of management are as nearly perfect as possible, a fact which is mainly due to the administrative ability and practical knowledge of Mr. Whitton, who has always been heartily supported by successive Convenors and members of the Parks Committee and the Corporation, as well as by a most loyal and competent staff. In addition to the magnificent horticultural features in the open and under glass in the d lightful winter gardens, recreation is adequate catered for, and few, if any, cities are well supplied with facilities for bowling, go tennis and other outdoor games. Mr. Whitt is a true plantsman, but reference must al be made to his interest in arboriculture, whic naturally has a powerful influence on the par under his care. This has also been high helpful to the Corporation, who, under M Whitton's advice, are afforesting part of the Highland estate of Ardgoil, Argyllshire, whe several hundred acres have been planted wit about 1,250,000 trees, mainly raised in a nu sery on the estate. To test the utility of t respective Conifers as timber trees, in t West of Scotland, a considerable experiment area has been planted and contains almost eve hardy Conifer obtainable. He has been a member of the Royal Scottish Arboricultural Societ for close on 40 years; for a long period a memb of the Council, and this year he occupies t position of senior vice-president of this societ Mr. Whitton's abilities have been recognise again and again by leading horticultural soci ties. He has been for many years a memb of the Royal Caledonian Horticultural Societ which, by the way, awarded him the Neill Pri several years ago; a vice-president of the Glas gow and West of Scotland Horticultural Societ The Royal Horticultural Society recorded the appreciation of his eminent services by awarding him the coveted distinction of the Victori Medal of Honour in 1913. He has officiate as a juror at many international exhibition at home and abroad, notably at St. Peter burg and Ghent. In other affairs he has take considerable interest. He is a member of th Glasgow Natural History Society; the Glasgo Archaeological Society; and several other cognate bodies. He is also a member of th ancient Trades House of Glasgow as one o the Incorporation of Cordinaers, of which h held the office of Deacon for a term. He a Justice of the Peace of the City of Glasgow and an elder and trustee in Bellahouston Paris Church. In private life Mr. Whitton is a gen ral favourite, and his many friends have learne to appreciate his high character and his genuin kindness of heart. His successor is Mr. Edwar Matthews, who has been his assistant since th death of Mr. James Rourke, nearly three yea ago. We are happy to be in a position to stat that Mr. Whitton retired on a handsome allow ance with the good wishes of the Corporatio and a host of citizens who appreciate his wor for the good of the community.

Memorial to the late Mr. Jackson Dawson.—It is proposed to raise a memorial to the lat Mr. Jackson Thornton Dawson, of the Arnol Arboretum, and the tribute will take the for of a fund placed with the trustees of the Massa chusetts Horticultural Society, the interest to b used for prizes, lectures and medals, or as th trustees may direct, to commend and encourag the science and practice of hybridisation an propagation of hard wooded plants. It was i this field that the late Mr. Jackson Dawso excelled.

Local Horticultural Societies.—The Congleto Rose and Sweet Pea Society is holding a exhibition of Roses and Sweet Peas in th Town Hall, Congleton, on Saturday, July 14 This is the sixth annual exhibition of th Society, which is affiliated with the Nationa Rose and National Sweet Pea Societies, an medals of the former Society are offered fo the best Roses in the show, open to all, an the best Roses in the amateurs' section, whil the silver medal of the National Sweet Pe Society is offered for the best vase of Swe Peas in the show. A challenge cup, valued 2 guineas, together with a sum of £6, is offere as first prize in a class for twelve vases o Sweet Peas distinct, with second and thir prizes of £3 and £2 respectively. The chie class for Roses is the competition for twenty four blooms in not fewer than eighteen varie ties, for which a first prize of £3 is offered —Beckenham Horticultural Society had a succes ful year in 1922, and the membership has bee increased to 115. The Society held two show in 1922, both of which were successful. A series of lectures was held during the winte on, at which the attendance averaged ty. The balance carried forward from last amounts to £8 14s. 2d.

ppointments for the Ensuing Week.—day, June 11—United Horticultural Benefit Provident Society's meeting; Bath Garers' Society's meeting. Tuesday, June 12—al Horticultural Society's Committees meet days); Jersey Gardeners' Society's meeting. dnesday, June 13—Yorkshire Gala (three s); East Anglian Horticultural Society's ting; Sheffield Chrysanthemum Society's ting. Friday, June 15—Association of Econic Biologists meet at Cambridge.

The Gardeners' Chronicle" Seventy-five rs Ago.—*Bess Pool Apple.* It appeared in of your papers, in the early part of the sent year, in an observation respecting the s Pool Apple, that it was a kitchen fruit, d to Christmas or January. I beg to say t it appeared at my table as a dessert fruit s present year till May, keeping perfectly nd up to that time. Its quality was better, l it was generally liked better by admirers the Apple, than almost any other sort. Its y use as a kitchen Apple is for stewing ole; for this purpose it is of much worth, the fruits never alter from their original pe, if well served; if baked, they dry up. garden should be without one or two s Pool trees; they are late in beginning bear, but seem never to fail when they once in, and their fine, handsome, and vinous it furnishes a certain stock of excellent lity for table use from November to May June. *W. P. L., Gard. Chron., June 3,* 3.

ublications Received.—*Gardening for the entieth Century.* By Charles Eley. John rray, 50a, Albemarle Street, W.1. Price net.

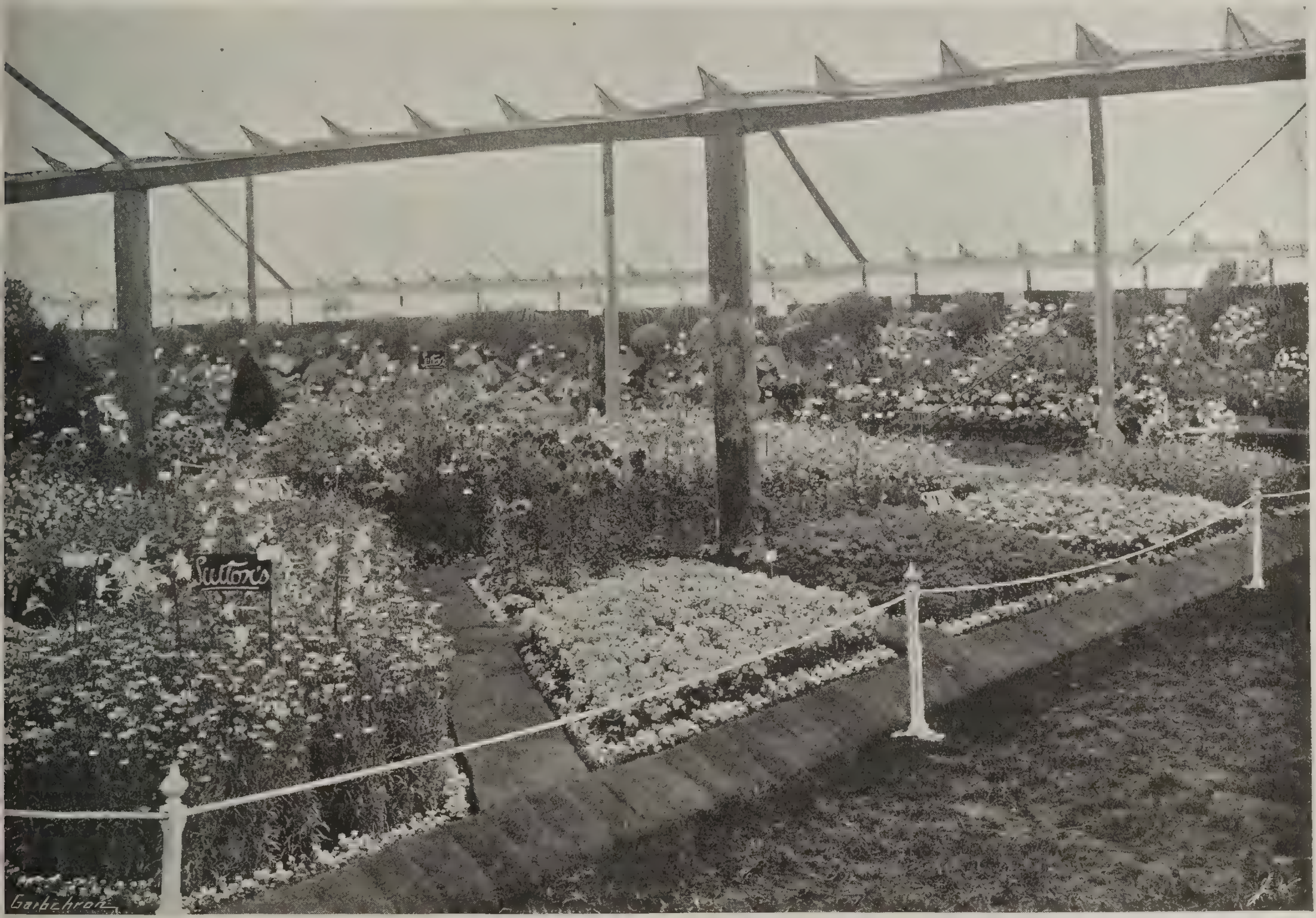


FIG. 150.—MESSRS. SUTTON AND SONS' GOLD MEDAL EXHIBIT OF ANNUAL FLOWERS AT CHELSEA SHOW (SEE P. 309).

NOTICES OF BOOKS.

Jottings From a Gardener's Notebook.

It is scarcely necessary to note that this book* has been written by a gardener, as any one of experience can see on the face of it when once he commences to read it. Some of the chapters or articles are very short, such, for instance, as that on Loganberries. Nothing is said about pruning, and that is one of the stumbling blocks of the novice, who does not comprehend that Raspberries, Loganberries, Phenomenal Berry and all other Rubi of rambling habit, are all pruned on the same principle. Another point is that all of these plants must be cut down the first year, whereas hundreds of amateurs require them to fruit the first year, and want to know how to make them do so. Amongst hardy fruits most attention is given to Apples. Soils and the preparation of them is dealt with at some length, on orthodox lines. The inexperienced amateur who has just taken a new house with a garden in pasture or in the native wild state would do well to read a book like this carefully, before commencing to plant. As a rule he wants to lay it out and plant it with all sorts of permanent subjects in hard, unworked soil, where a Dock would find it hard to linger before dying. Lists of suitable Apples, Pears and Plums for the small garden are given, with reasons for their selection. Bush trees are considered best for small gardens, and cordons come next. Vegetables for home use and exhibition, as well as for early use, are dealt with at considerable length. Part 3 of the book is devoted to popular flowers; while Part 4 is an extensive calendar for every day of the year. There are many illustrations.

The Ferns.*

Dr. Bower has been an ardent student of Ferns for about forty years (though he says nothing about this), and is therefore well qualified to make an exhaustive inquiry into their relative affinites, the most primitive of existing forms and the order of progressive evolution. It may seem strange to regard Salvinia, Azolla, and Marsilea, as types of floating and aquatic Ferns, yet as such they are classed. They are also described as microphyllous, whereas most Ferns are megaphyllous. The anatomy or histology of root, stem, leaf and reproductive organs, with cognate subjects, are discussed in seventeen chapters, and illustrated with a wealth of very exact drawings and some photographs. The large-spored Ferns, represented by the Ophioglossaceæ and Marattiaceæ are reckoned the relatively primitive types, while the remainder end up with the Polypodiaceæ, the most numerous and the most advanced at the present day. Fossil Ferns confirm this order of development. The sporophyte or Fern-plant has the most marked features for comparison; and the gametophyte offers far fewer facilities for this. The cresting of Ferns is dealt with and considered as a reversion to an ancestral type, which branched dichotomously. An illustration is given on p. 340, of Hornea Lignieri, as an example of a very early type of land-living sporophyte. It is interesting to note that the spermatozoid is not always a round body, with a corkscrew tail, ending in fringes, as in the Male Fern, for in that of Onoclea sensibilis the whole body is elongated, flattened, and twisted, without fringes.

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* *Jottings from a Gardener's Notebook.* By F. W. Miles. Letchworth Printers, Ltd., Norton Way, Letchworth, Herts. 1923. Price 2s. 6d.

* *The Ferns* (*Filicales*). Treated Comparatively with a View to their Natural Classification. Vol. I. Analytical Examination of the Criteria of Comparison. By F. O. Bower, Sc.D., LL.D., F.R.S., Regius Professor of Botany in the University of Glasgow. Cambridge, at the University Press. 1923. Price 30s. net.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Acineta.—The two or three members of this genus are developing their inflorescences, and extreme care is necessary, as if the plants are over-watered at this stage the spikes may turn black and drop off. These plants are similar in their habit of growth and flowering to Stanhopea, and succeed under similar conditions. Any necessary attention at the roots should be afforded soon after the plants have passed out of flower, when new growth has commenced and the roots begin to develop briskly.

Sophronitis grandiflora.—This brilliant, cool-house Orchid has passed out of bloom, and its partially developed pseudo-bulbs will commence to make new roots. The best possible time to undertake any necessary repotting is when roots are observed to be developing. These Orchids, owing to their small pseudo-bulbs are best grown in shallow pans, suspended from the roof rafters. They should be afforded ample drainage, and a rather thin layer of material should be used. A similar compost to that used for Cattleya cut into small pieces will serve their requirements. With the exception of temperature, these plants may be treated as Cattleyas as regards their seasons of growth and rest, as there is a close relation between the two genera. When growing actively care should be taken that water is not allowed to remain in the centre of the young growths, as this may set up decay and be the means of the loss of the young growths. Whilst Sophronitis does best in the cool house, many of the hybrids require much more warmth, hence the necessity of finding suitable quarters for the individual varieties.

THE FLOWER GARDEN.

By G. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Annual Climbers.—In addition to garlanding fences, pergolas and the like—the general and natural use to which these plants are put—they are most serviceable for covering a shrub that may have died and which it is too late to replace this season, also for masking bare places between plants on walls and buildings. Three stakes fixed tripod fashion close to the wall form a handy support up which the annual used can climb. The chief of these annual climbers are Sweet Peas, Nasturtiums, Convolvulus—with which I include Ipomaea, and the Canary Creeper, Tropaeolum canariensis.

Transplanted Shrubs.—Notwithstanding the showery and much cooler weather experienced lately, the ground is in some places quite dry when it is moved to the depth of a spade. This being so, those who have planted trees and shrubs should make quite sure that the ground is moist down to the roots, and this is especially necessary when the roots form a ball of fibres, as in Rhododendrons. Merely testing the soil an inch or so deep for moisture is not sufficient.

Stopping Herbaceous Plants.—This practice is necessary in regard to several families of plants, more especially those grown in pots, but is not usually carried out with border plants. Nevertheless, several years' experience of the operation have proved to me the soundness and satisfactory results of stopping border plants. Among plants that specially call for this treatment are perennial Asters, Artemisia lactiflora, Helenium, Helianthus, Œnothera, Rudbeckia and Solidago. This act of pinching out the growths produces a shorter habit, and the plant is better able to withstand winds and storm, a great consideration in exposed gardens, and lessens the need of staking. When the plants are from half to three-parts grown is a suitable time to stop them.

Weeds on Paths.—Weeds show themselves all too soon on paths that are none too well drained and sparsely covered with gravel; and the only effective method of keeping them in check for a reasonable time is to apply a thoroughly efficient weed-killer in accordance with instructions issued by the makers. If the application be made when the ground is moist, the solution soaks in the soil quickly, and the result is sooner realised; but circumstances do not always favour waiting for such a condition. Where the use of weed-killer is objected to, the only alternatives are hand-weeding or hoeing the paths and raking off the weeds, afterwards re-firming the paths. A day spent now in removing coarse weeds from a lawn is worth two days or more spent in doing the same work in the colder season. As grass grows fast at this period, any scars made are soon hidden unless the weeds have made exceptional big and spreading growth, when it would be advisable to fill the hole with fine soil to assist the grass in covering the bareness.

Rheum.—Certain members of this family have a high ornamental foliage value, and should find a place in all gardens large enough to warrant their inclusion. The towering spikes of white or red flowers, as the case may be, add greatly to their appearance, the red-flowered species now in bloom being the more striking. Being vigorous growers, these ornate Rhubarbs will thrive in most soils, and once planted, will practically take care of themselves.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Begonia manicata.—Cuttings of this fine, winter-flowering Begonia should now be inserted singly in small pots, plunging them in a propagating case, furnished with slight bottom heat. When rooted the young plants should be grown on into six-inch or seven-inch pots, for their first year, when they will be suitable for furnishing the plant stages. During their growing period they should be placed in a house having an intermediate temperature. They are at their best when grown on for a second year. Young plants used for the benches last season should now be potted on into ten-inch pots, in which they should make fine specimens, six to seven feet in height. This Begonia is generally grown in too much warmth when in flower, usually in a stove temperature. In such conditions the colour in the flowers is poor, and the blooms only last about six weeks. If, however, it is removed to an ordinary conservatory when the flowers show signs of colour, it will last in perfect condition for at least three months.

Begonia Gloire de Sceaux.—If not already inserted, cuttings of this fine winter-flowering Begonia should be placed singly in small pots, and the latter plunged in a warm propagating case; this Begonia should be grown in a temperature of 60° to 65°, but when in flower does best in an intermediate temperature.

Freesia, Lachenalia and Nerine.—The foliage of these bulbous plants having practically died down, water should be withheld from the roots. The plants may be stood in cold frames for the summer, keeping the frame lights on, but otherwise fully expose them to sun and air.

Canna.—Large specimen Cannas are very useful for furnishing beds in the conservatory during the summer and autumn; they will maintain a display of bright flowers until Chrysanthemums come in. Plants that are well started in 48-sized pots should be used for making up specimens, placing four of them in a twelve-inch pot. Cannas are gross feeders, and should be given a rich compost, adding well decayed manure to the potting soil. They need plenty of heat and moisture, and, while growing actively, should be afforded a temperature of 60° to 65°. When showing signs of flower they should be removed to the conservatory. Plants started early in the year and grown in small pots are making a good display. Successional plants that have well filled their pots with roots should be afforded liberal feeding with dilute liquid manure or suitable concentrated fertiliser.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, E
Carlton Park, Market Harborough, Leicestershir

Cauliflowers.—Continue to plant out seedli
Cauliflowers as fast as they become ready, a
treat them as advised for Broccoli. Pla
growing in frames and on warm borders, fr
an autumn sowing, will be ready for use short
and they should be kept well watered a
mulched. Bend the leaves over the heads
tie the foliage with raffia to keep the cu
white.

Leeks.—If not already done, seedling Le
should be transferred to the trenches prepa
for them, and planted in the same manner
advised for Celery. Water them in thorough
and keep the soil about them stirred with
Dutch hoe. The blanching of the stems sho
be commenced almost as soon as the Leeks
planted by placing tin or brown paper coll
over each plant, and drawing them up
growth proceeds, at the same time adding m
soil to the roots. A better plan is to pl
boards along either side of the rows, and
the space enclosed by them with finely brol
soil as the plants develop, adding more boa
as the plants become taller. The trench out
the boards may be mulched, and the roots k
watered all the summer to the great advant
of the plants. For ordinary use, make h
about fifteen inches deep, drop a plant in e
hole and fill the latter with water to se
the soil at the bottom. The plants will soon
the space, and later soil may be earthed up
them.

Herb Border.—Keep the herb border cl
and tidy by frequent hoeing. Seedling he
should be thinned before they become dra
and top-dressed with a little sifted leaf-mo
Parsley planted out from boxes should be m
ing good progress. Do not gather any of
leaves until the plants become larger.

Runner Beans.—Plants of Scarlet Run
raised in boxes should be planted out a
being hardened off. The site for the rows hav
been selected, place stout poles, two at e
end of the row, about 15 inches apart,
drive them in firmly, leaving about 7 ft. ab
the ground. Also place two stakes in the mi
of the row, or at more frequent intervals if
rows are long. Stretch some fairly stout
down each side, about 6 ft. from the gro
and then place the poles about 1 foot apart
tie them to the wire. If Pea-sticks are use
a means of support, select the longest, and p
them so that they just touch each other, an
the tops to the wire. A strong support is n
sary for Runner Beans, as they become
heavy when in full growth and are easily bl
down. Fork the ground lightly around
sticks, and then rake it level. Lift each p
from the boxes with a good ball of soil,
plant one to each stake. Water them in w
the work of planting is finished, and tie
young growths to the stake to give them a
start. Damp the plants overhead in the a
noons of warm days, and hoe the ground r
them frequently to promote a quick growt

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners,
Woolverstone Park Gardens, Ipswich.

Pot Figs.—These trees will have been aff
ing ripe fruits, but the crop will soon c
unless there are successional batches of t
available. After a crop is finished, the sur
soil, which can readily be removed, shoul
taken away, and a top dressing of fresh l
mixed with old lime rubble, bone-meal, an
sprinkling of a quick-acting fertiliser app
This will assist in the development of the se
crop of fruits, which is now in an adva
stage. Where it is not possible to apply a
dressing owing to the pot being full of r
a strip of zinc, about 5 inches in width, pl
around the inside of the rim will provide a
room for the purpose. Diluted liquid-ma
may be applied two or three times weekl
the pots are well filled with roots. In re
to moisture, do not be misled by the

pearance of the top dressing, for the soil ow it may be dry. Stopping of the shoots ds frequent attention.

Successional Houses.—The fruits of the earlier rieties of Peaches and Nectarines are well vanced, and the trees should receive plenty air in favourable weather, with a drier at- sphere during the ripening period. Nectarines, ere growing close to the glass and fully ex- sed to the sun, will be the better for a ght shade during the hottest part of the day. is will prevent scalding of the skin, which, allowed to occur, completely spoils the appear- e of the fruits. A light spraying with "Sum- r Cloud" on the glass will afford sufficient ade without detriment to the colouring of the its. The shading should be removed when fruits have been gathered. At this stage night temperature may range from 60° to ; during the day, as the heat increases, dually admit more air until it is possible afford full ventilation. Houses in which the es are at the stoning period are best kept der cool treatment until the stoning is com- ted, after which, if necessary, the trees may subjected to gentle forcing. They will, how- r, succeed better, and give finer fruits, if wn under comparatively cool treatment. e fruits should be fully exposed to the light good time, or they will lack colour. Keep young growths tied down as they extend pinch out their points when they have ained a length of twelve inches to fourteen hes. Extension growths may be allowed to w considerably longer, checking any growth ich is at all gross in character; laterals growth uld be pinched back to the first joint.

HARDY FRUIT GARDEN.

A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

he Fruit Prospects.—May, 1923, will be re- ded as one of the worst experienced by fruit wers and others. The intermittent cold be bound to affect the ultimate fruit crops. y immediate warm rains will save crops of kinds that may survive. The rapid trans- ation of moisture by the foliage and evapora- of soil moisture by cold, drying winds cts injuriously on the trees. As a result, a siderable amount of fruit has dropped, and increase of insect pests must be expected. have watered our trees on the higher und in the hope that loss of crops will be nteracted, and with warmer weather rapid lling of the fruit should follow. The ible is that the fruit, having set well, has ained at a standstill so long. Water will e to be applied to all fruit trees on light s if the crops are to be saved. Those who e kept their land well tilled will be well id this season for their trouble. Apple erican Mother blossomed very late, and it be interesting to make a comparison with nd varieties that flowered earlier, also during ld period.

rafts.—Neat sticks should be placed to ng grafts, and the binding material secur- the grafts in position should be loosened. wths from buds should also be made re. Continue to disbud, and thin fruits as red. Keep a watchful eye for woolly aphis also for Peach-leaf curl, and, where neces- apply remedies as previously recom- ded.

neral Remarks.—In gathering Gooseberries, e nearest the ground should be removed , followed by a general thinning of the ies. Straw will now have been placed nd Strawberry plants, but stimulants may iven the roots to assist the fruits to swell. o time should Strawberries be allowed to r a check from insufficient moisture. Nets the protection of the berries from birds ld be placed at least 4 feet above the bed llow the fruit gatherers easy access. The may be placed over a light framework. permanent cage is desired, the sides may f galvanised wire. It is best to use square fish netting for the top. Permanent wire ng is liable to cause damage to the cture by snow, and there is the detrimental t of drip to consider.

CHRISTMAS ROSES.

Helleborus niger is a variable plant, and there are several forms of it in cultivation. The type is well known, and is largely grown for cut flowers in many parts of the country.

The type is eclipsed completely, however, in beauty and dignity of flower, by several other sorts. Of these the best is, undoubtedly, H. niger angustifolius, var. St. Brigid, which is of Irish origin. It is a stately plant with its noble blossoms, of the purest white, and the texture of the petals is remarkable. The flowers are borne on very long, stout stems, and not even the choicest selections from the inconstant H. niger maximus can rival this exquisite Irish Hellebore. St. Brigid, owing, apparently, to errors in growing it, has become very scarce, and I have seen it stated that the variety is not now in commerce. It is rarely offered, but it can still be had. It is almost impossible to make any mistake in regard to this charming variety, for its foliage is distinct from that of any other.

There is a variety of H. orientalis named angustifolius, which is, of course, a Lenten Rose, and which must not be confounded with St. Brigid.

In order to grow H. niger St. Brigid well it is necessary to give it very liberal treatment, and the plants must not be disturbed. An annual mulch of well-decayed cow-manure, supplemented by bone-meal, is essential to success. A full exposure to sunshine is incumbent, and on no account must the plants be allowed to suffer from dryness at the roots. When it is grown in this way on a light, loamy soil, and the clumps have attained an age of three or more years, its flowers are superb.

The variety known as Madame Fourcade is intermediate between the type and H. n. maximus. It produces two flowers on a stem and is pure white. The forms of H. n. maximus gives quite a host of flowers, and some choice things may be selected from them. The best of these, next to St. Brigid, are the finest of all the forms of Helleborus of n. maximus character. These fine selections from H. maximus are the earliest to flower, and they begin from October onwards. As a rule the blossoms are pure white, shaded with rose on the exterior of the petals. The other varieties, notably giganteum, major, angustifolius, altifolius, grandiflorus, and the Bath variety, are all variants of H. n. maximus. I think that many seedlings must have been put into commerce, very possibly by Dutch growers, judging from the immense variation I have found in gardens.

The Christmas Roses are all too often grown in some shady position in the garden. There would be less trouble with the dreaded disease if the plants were grown in full exposure to sunshine. They all do best in a rich, light soil, and they need watering if the summer should be dry. A mulch serves to retain the soil moisture. They are all gross feeders, and the soil cannot possibly be too rich. The plants resent disturbance, and when once put in they should be left alone for several years. The small plants generally received from nurseries take at least three years to form clumps capable of producing fine flowers. *George M. Taylor, Edinburgh.*

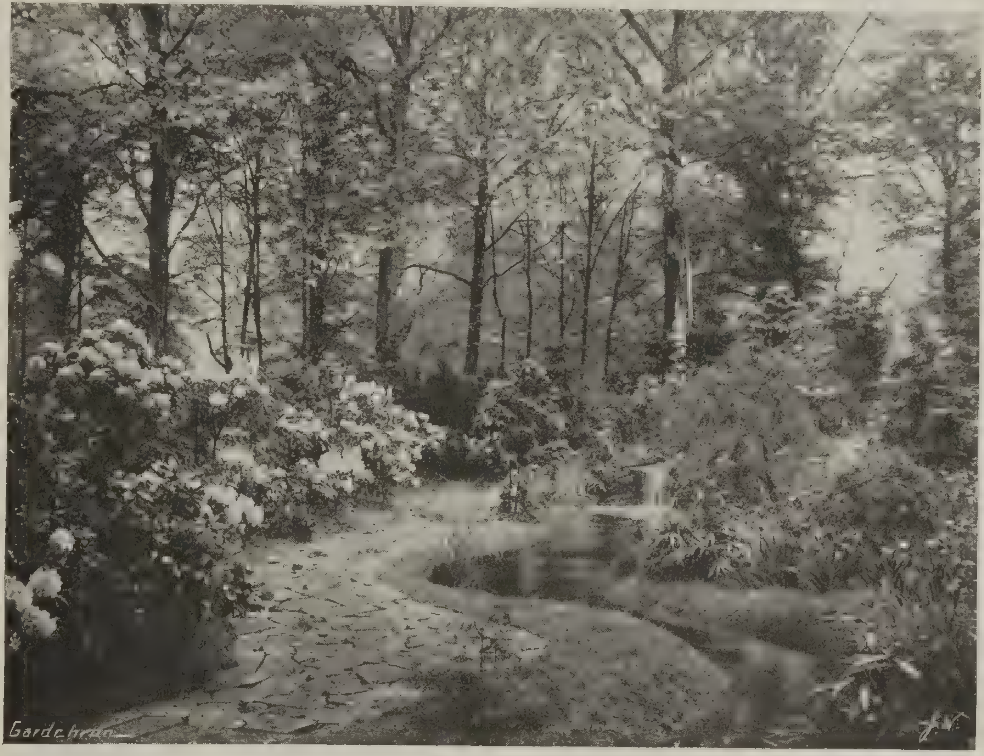

FIG. 151.—MESSRS. J. CARTER AND CO.'S IRIS AND WATER GARDEN AT CHELSEA SHOW. (SEE PAGE 306).

TREES AND SHRUBS.

CISTUS LADANIFERUS.

This fine Cistus must always rank among the very best of its race, even if it is not one of the hardiest. Though the commoner and more robust C. cyprius is not seldom seen labelled C. ladaniferus, the true Gum Cistus may easily be distinguished by the flowers being borne singly in the leaf axils whilst those of C. cyprius are produced in clusters. There are also other differences, including the very noticeable yellow tint that pervades the young wood and foliage of the Gum Cistus. The leaves of C. cyprius, moreover, are not only of a deeper green, but they assume a more decidedly glaucous sheen in winter.

The white flowers of both of these Cistuses are about four inches across and have a deep, vinous-red, or maroon blotch at the base of each petal.

C. cyprius occasionally bears semi-double blossoms, and there is a remarkably fine variety of C. ladaniferus with pure white flowers. Though a free grower in a warm, open soil, C. ladaniferous is not a long-lived shrub in some places. But it is easily raised from seed and will even become naturalised in congenial locations. *A. T. J.*

CYTISUS PURPUREUS INCARNATUS.

In reply to Mr. Arnott (p. 269) *re* the above, the trouble we have had with this Broom and other varieties of this species is mildew. We have tried the three in various places, on their own roots and otherwise, but they have been, almost without exception, so attacked by this disease as to be rendered useless. Though we have a fairly representative collection of Brooms, no other kind is affected in this way. C. p. incarnatus is undoubtedly a fine plant, and that it does so well in some gardens makes its failure here the more to be regretted. *A. T. Johnson, Talycafn, N. Wales.*

DECIDUOUS AZALEAS.

Deciduous Azaleas, by the splendour of their hues, seem to outshine all their predecessors as spring-flowering shrubs, and surely no other plant can equal them in their rich display of colour, that ranges from the most delicate cream through all shades of yellow, pink, salmon and orange to scarlet. Whether grouped in separate colours or arranged in mixed masses they provide a floral feast reminiscent of the gardens of Japan.

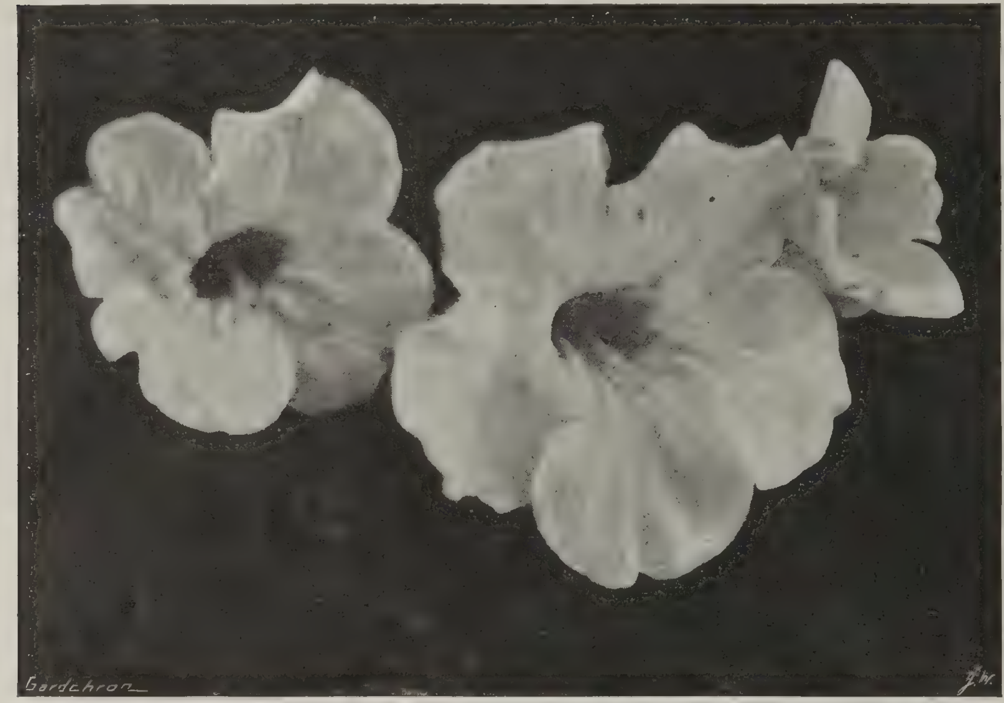

FIG. 152.—INCARVILLEA BEES' PINK: R.H.S. AWARD OF MERIT, MAY 29 (SEE P. 304).

Although a peaty soil is most suitable for them, it is not essential, and they flourish in any good loam of a non-calcareous nature. The more open glades of the woodland, where the surface soil has become enriched by the accumulation of fallen leaves and other decayed vegetation over a period of many years, are admirably suited to the cultivation of these plants and offer the planter much scope for the production of pleasing colour effects. If the planting scheme is arranged to include both the early and late-flowering groups the display is maintained over a prolonged period.

For this purpose mixed masses are as effective as grouped colours, and for the extension of plantations seedlings may be raised from own saved seeds. When the plants have attained a large size it is not always practicable to remove the seed pods, but while in the small stage this should be done immediately after flowering, as seed-bearing is a great drain on the energies of the plant, materially reducing its vigour and consequently its next year's florescence.

Glorious autumn colour effects are also produced by established plantations, as deciduous Azaleas are amongst the most attractive of autumn-tinted shrubs, the foliage dying off in brilliant shades of orange, scarlet and purple. *W. Auton*

THE PROPAGATION OF "DIFFICULT" PLANTS.

Much has been written from time to time concerning the propagation of certain plants and the difficulty in getting them to root, therefore the following notes may be of service to growers:—

Erinacea pungens.

This plant is considered difficult to root from vegetative shoots and often the time taken is said to be from 12 months to 15 months. Nevertheless, I consider it to be one of the easiest to propagate of its kind, and may be rooted readily in from fourteen to twenty-one days, depending upon the amount of sunshine.

The method adopted in the Royal Botanic Garden, Edinburgh, is as follows:—Cuttings are taken from the parent plant from May right on to the middle of August, after which the rooting process will be much slower. They are placed in a sun-frame facing south and fully exposed to the sun. The propagating frame is jacketed (one frame inside another), thereby preventing too great a reduction of temperature should the day be cloudy. If the weather be very hot and sunny, watering takes place every half-hour or every hour. The water should always be warm, having been taken from a tank in a tropical house. (Tank heated up to 70° to 80°).

The amount of sunlight available is a very important factor in the propagating of this plant. For example, if the cuttings are put in the cutting frame and get a few days' sunshine, then dull weather sets in, the results are practically nil, but with fairly bright sunny days and just a few days without sun (the sunless days at intervals) there is no difficulty in getting a strike of 95 per cent of the cuttings.

Great care must be taken in the potting of these cuttings and in the method of treatment. When the first lot of cuttings is ready for potting, the soil should be prepared with the proper amount of moisture in it, and placed in a tray or shallow box, inside the case where the cuttings were rooted, to bring up the temperature of the soil to that of the cutting case.

Potting should commence about 11 a.m., when the outdoor temperature is on the rise. After potting, the cuttings should again be put into their old quarters and watered, a kept there until they have rooted through the side of the pots, when they should shifted into a cool, close frame to becor gradually hardened off, to prepare them planting out in the rock garden or elsewher It is a mistake to take many cuttings o of the case at one time; handling them quick is one of the secrets of success.

Adoption of this system by commerci growers would save a lot of time, as one able to root, establish, and plant out pungens in the same season, instead of wa ing from eighteen months to two years. Wh cuttings are taken from the parent plant wi a sharp knife, or pair of sharp scissors—whi is much the best implement owing to the spi nature of the plant—no further preparati is necessary, the cuttings being taken straig to the propagating frame and put in. T sand in the case being loose, no dibber is quired for inserting the cuttings, and th are only put in as deeply as will keep th standing erect. After inserting, water the sa well to firm up the cuttings. This is all th is necessary.

The foregoing method applies equally w to Ulvex europaeus, fl. pl. (the double-floweri Gorse).

Arctostaphylos Manzanita.

This is another plant which seems to g trouble, but is found to be comparatively e to root here.

Although not a subject for a sun-frame, may be propagated in an ordinary, outsi brick frame, with a northern exposure, and temperature ranging from 50° to 65°, accord to the weather. Here again frequent wateri is necessary; on dull days twice a day is fou sufficient, but when the weather becomes and dry, watering must be done five or times daily. The water should be as nea the same temperature as the propagating fra as possible.

The following table may be of some assi ance to anyone who may be interested in growing of this very fine flowering shrub, a may act as a guide as to which are the m successful months in which to take cuttings Arctostaphylos Manzanita.

Six cuttings were put in every month, a the following results were obtained:—

January ..	..	2	rooted	(May)	
		4	,,	(July)	
February	..	1	,,	(April)	
		5	,,	(July)	
March ..	..	1	,,	(May)	rest de
		1	,,	(July)	
April ..	..	5	,,	(July)	cne de
May ..	..	3	,,	(July)	rest de
June ..	..	3	,,	(Sept.)	rest de
July ..	..	3	,,	(Aug.)	rest de
August ..	..	6	,,	(Oct.)	
September	..	4	,,	(May)	rest de
October ..	..	4	,,	(Aug.)	rest de
November	..	2	,,	(May)	rest de
		1	,,	(July)	
December	..	6	,,	(Aug.)	

In taking the cuttings we use a sharp kn and remove the flowers on the end of t shoots, but no leaves are removed from t stems of the cuttings. The cuttings are th inserted just deep enough in the sand to ke them standing erect, no dibber being requir for the operation.

I may mention that it is a hard-and-fa rule in the propagating department here th a dibber must never be used so far as vegetati propagation is concerned. The reason f this is that the mediums used for propagati are either pure sand or coconut fibre, an being of a very loose texture, cuttings m be inserted easily without the use of a dibbe When inserted in this way, it is certain th the basal end of the cutting is in close conta with the medium, thereby getting the requisi amount of moisture to form callus and root *L. B. Stewart, Royal Botanic Garden, Edi burgh.*

(To be continued.)

ARDEN NOTES FROM S.W. SCOTLAND.

Paeonia Mlokosewitschii (I hope I have given s bloodcurdling name correctly) is a notable ddition to our list of herbaceous Paeonies. resumably a Chinese species (it came here rom the extinct Alder River nursery three ears ago without note of its native country) did very little in its first season to captivate ur fancy, though the foliage is attractive in all s stages. This year, however, it has come to s own, standing two feet high, opening the rst of its great lemon-coloured flowers on ay 12, and being still in beauty to-day—the 8th. It is a far more desirable plant than . lutea, which never does itself justice, hiding ts blossoms under the leaves, whereas P. lokosewitschii holds them well aloft.

The earliest Paeony to flower here, and the ost delicately coloured, is P. Cambessedesi, hich a kind Irish lady found in the Balearic sles, collected some roots thereof, while the lant was in full flower, and gave me two good ieces which have been a source of much joy ver since. It began to flower here on April 0, so the bloom is now past, but the foliage emains fresh—the upper surface with a metallic heen like oxidised silver. the lower surface ich red. Like others of the genus, this species ppreciates an allowance of ground limestone in he soil.

Hippeastrum (Habranthus) pratense is just oming into flower, unrivalled even among its hilean compatriots for flagrancy of orange-ermillion. The vehemence of its hue calls for ome care in choosing neighbours for it, so orribly does it contrast with blossoms of more elicate colouring. For instance, it must be ept well out of sight of Rhododendron Soulei, ust now a pretty picture—a dome of cherry-ink and snow rising out of a carpet of yosotis sylvatica.

The common wooden labels are the cause of onstant vexation, so perishable are they and o apt to be kicked over and broken. Most imely, therefore, was the very last of many rinkles I received from my old friend, Mr. . J. Elwes, who recommended me to use abels made of the wood of Holly. These are ar more durable than deal, and the white urface can be inscribed with a lead pencil ithout any need for paint. *Herbert Maxwell, onreith.*

ALPINE PLANTS AT KEW.

Both the rock garden and the alpine house t Kew are exceedingly interesting just now, ndeed, the alpine house is one of the most ttractive features at the present time. The ockwork piled up in front of the alpine ouse is exceedingly pretty, the most striking lant in flower being Erinus alpinus, which as covered great patches with its mauvy-pink lower spikes. There is also a fine clump of nosma echioides bearing its clear yellow, rooping bells on stems a foot or so high; nthemis montana is also finely flowered on his little outside rockery. In the alpine ouse the Erinus already referred to is qually beautiful, growing in pans. Several chilleas are finely in flower, including A. ortae, bearing cymose inflorescences of pure hite flowers on stalks some nine inches tall; . Wilczekii, bearing on tall stems handsome hite flowers, with a boss of pale yellow tamens, in heads of some six or seven; and A. rgentea, which has pretty, delicately pinnate oliage of a soft grey colour. Saxifrages are lso very fine, including S. cochlearis, S. ongifolia, C. cochleariaefolia, the last with ainty inflorescences of white flowers arising rom a mass of spathulate-shaped foliage; and he hybrid S. cochlearis × lantana. Alyssum pinosum is also finely in flower, producing its ense, globose heads of white flowers above he greyish, spathulate-shaped foliage.

Other interesting plants are Dianthus allizonus, with relatively large, light pink lossoms that have a zone of deep red spots round the eye; Aster alpinus; Phyteuma Scheuchzeri, bearing curious, spiky, violet-blue heads of flowers; Veronica austriaca, a very charming species for a pan, with beautiful blue flowers that fade to purple with age; Raoulia australis, an uncommon plant that forms a mat of dense growth of greyish-white colour, which in its native home, Australia, is often mistaken at a distance for a sheep; Erodium corsicum, a pretty pink-flowered species, the petals veined with deeper pink; and Primula Veitchii, with glowing, rosy-purple flowers, a most glorious shade of colour, the spikes arising from among large, cordate, Sage-green leaves.

The rock garden contains a host of interesting species in bloom, and amongst those that attracted my special notice were Aster heterochaeta, one of the new species discovered on Mt. Everest last year; it has promise of making a good garden plant, with its mauvy-blue flowers some two inches across produced on stems from six to ten inches high; Aethionema amoenum, one of the showiest of all the plants in flower, patches several yards across being covered with the pale pink flowers that become even paler with age; Oxalis enneaphylla, which gives a variety of colours, but needs the sun to open its numerous blooms; O. adenophylla, with rosy-purple and crimson flowers; Polygonum sphaerostachyum, which has very dainty inflorescences that form a columnar tuft on the end of stalks some ten or so inches high, and with very elegant foliage; Melittis Melissophyllum, which bears a great resemblance to a Dierillea, both in the foliage and shape of the flowers; it is a very striking plant; and Paeonia Woodwardii, a lovely species with single, soft rose colour flowers, allied to P. anomala.

Of the many interesting Primulas noticed in bloom, the more striking were P. helodoxa, which is also exceedingly fine just now by the edge of the lake; P. Cockburniana, the flowers of which are scarlet, and, as massed in the rock garden, show to great advantage; P. sikkimensis, with charming yellow bells; P. vittata, a species close to P. secundiflora; P. flexilipes, which bears its lemon-yellow bloome on thin, wiry stems that move with every breath of wind; and a fine form of P. japonica, with clear, soft pink blossoms.

Many of the plants arranged in their Natural Orders in the beds near by are now in flower, and offer opportunity for those who wish to identify species, although in some cases, such as Euphorbia, Geranium and Veronica, the affinity is so close that only an expert can tell the differences. *T.*

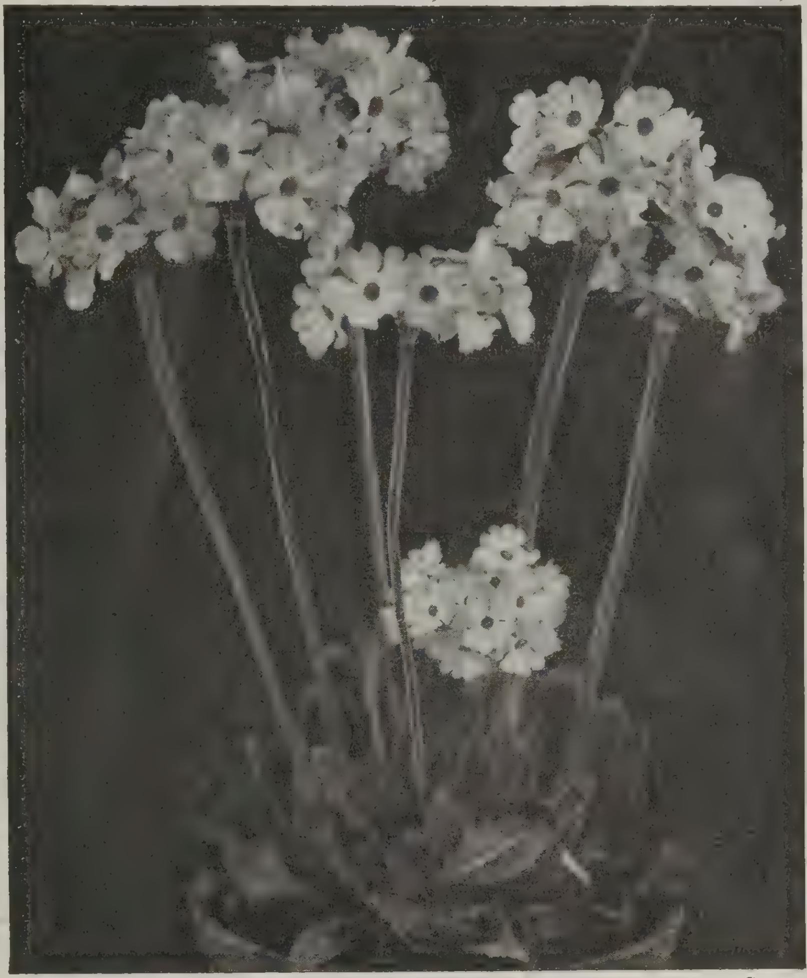

FIG. 153.—PRIMULA CHRYSOPA; R.H.S. AWARD OF MERIT, MAY 29 (SEE P. 384).

THE ALPINE GARDEN.

CAMPANULA RADDEANA.

Although not a novelty, Campanula raddeana is a comparatively rare plant in gardens. It is of much beauty, and has a most accommodating nature; it lends itself readily to increase by division, and probably by seeds. It came to me as a novelty a few years ago, and it proved all that it was stated to be—a beautiful plant, dwarf in habit, free-flowering, easy in its cultural requirements, and in every way a most desirable subject for the rock garden.

I planted a specimen in my garden on a level part of the rock garden, facing south-east, in loam, leaf-mould, and a little sand and grit, and there it throve well and gave every satisfaction. The plant forms charming tufts of glossy, prettily notched leaves almost close to the ground; above the foliage rise slender stems bearing large deep violet bells, reminding one of a glorified, deeper-coloured Harebell, and drooping gracefully towards the ground. It comes from the mountains of Transcaucasia, which doubtless contain many other beautiful new alpine plants. *S. Arnott.*

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PATRICK NIELL, LL.D.

IT is exactly 100 years since Dr. Niell's Magnum Opus—*A Horticultural Tour*—was published. It may therefore be opportune to make a few remarks on the history and writings of this, in his day, celebrated horticulturist. Dr. Niell was a member of a family of printers and type founders, whose business premises were situated in one of the "closes" extending from the High Street to the Cowgate, Edinburgh, the firm now being located in a street behind Princes Street. Canonmills Cottage, the Niell's private residence was not far from the present Royal Botanic Gardens, and had been occupied by them since the beginning of the eighteenth century. The garden was just a little more than half an acre, and while in the occupation of Dr. Niell, it had become a very famous one, not only for the thousands of plants it contained, many of which flowered therein for the first time in this country, and were duly reported in the *Botanical Magazine*, and elsewhere, but also for its specimens of animated nature—Gulls, Herons, Owls, Eagle, etc. So great a value was placed upon its preservation that the line of a projected railway tunnel between Edinburgh and Leith, which the promoters wished to carry underneath the garden, had to be altered so as not to interfere with its amenity.

Dr. Niell was one of the originators of the (Royal) Caledonian Horticultural Society, in 1809, and was joint or sole secretary thereof for more than 40 years, and this, no doubt, accounts for the interest he displayed in gardening and gardeners. The memoir of James Stuart, Pinkie House, Musselburgh, which he wrote on the death of that gardener, is to later generations a vivid illumination of the estimable qualities of those practitioners who worked under difficulties of which we in our day have no conception. On Dr. Niell's death this interest was still further revealed by a bequest of £500 to the Royal Caledonian Horticultural Society, the interest from which was to be bestowed every second year on a Scottish gardener to purchase a momento of the giver. But this society was only one of many in which he took a keen interest, an interest that never relaxed till the burden of old age incapacitated mind and body.

Patrick Niell was born in 1776, and attained to manhood at a time when Edinburgh was the centre of great literary and scientific progress Among his friends were Sir David Brewster and other University men; lawyers like Francis Jeffrey; Sir John Sinclair, and many others. He seems to have been brought up an Anti-Burgher, the straitest religious body of that time, but later he united with the Established Church, nor ever allowed ecclesiastical opinions to interfere with friendships, and even after the Disruption in 1843, when the ties of friendship were severely strained, he continued to welcome Dr. Chalmers and other Free Kirk leaders to his house and table. Portraits show Dr. Niell to have been rather short in stature, thin of body, his visage long, with prominent profile. At least in his later years he walked with a slight stoop, aided in his progress by a gold headed cane, and carrying in the other hand a bulky umbrella, which he dragged behind him. He always wore a brown wig, a voluminous white cravat and black clothes, the coat distinguished by its length. Each day he walked up Pitt Street on his way to business, which he attended to with unfailing regularity, at the same hour, and was indeed regarded for his peculiarities as one of the "characters" of the city. But no "character" was more generally popular, the fellow citizens of his ward showing this by electing him as their first representative to the reformed Town Council, a seat in which he held for many years. He was very conservative in everything, and it is related in this connection that he long resisted the attempts of the authorities to drain a filthy pond on his premises, lest a weeping Willow, whose roots imbibed sustenance therefrom, should suffer. He never married, and lived with a spinster sister and died calmly as he had lived, September 5, 1851. Loudon, G. W. Johnson, and others, acknowledged the help and sympathy extended to them by Niell, in their literary undertakings, and the former's *Encyclopædia of Gardening*, was said to be modelled on an earlier work of his.

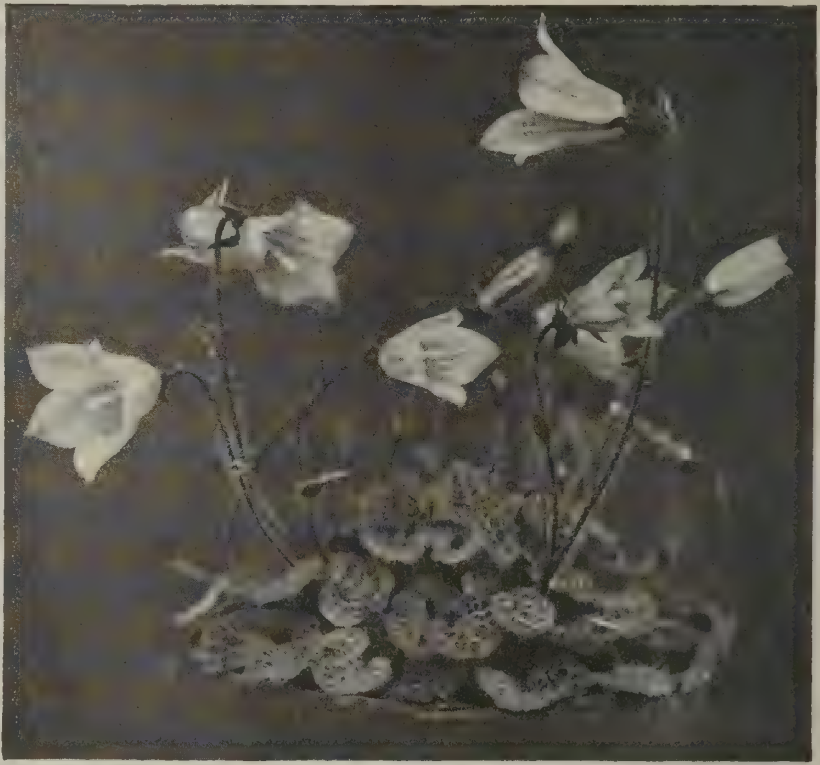

FIG 154.—CAMPANULA CALCICOLA; R.H.S AWARD OF MERIT, MAY 29 (SEE P. 304).

Dr. Niell was a fertile writer on subjects other than gardening. Geology, itchthyology, zoology and other sciences engaged his pen. Perhaps his earliest book was *A Tour Through the Islands of Orkney and Shetland*. Of purely horticultural interest, he wrote a lengthy article for Brewster's *Edinburgh Encyclopædia*, which it was intended to publish separately, but the appearance of Loudon's *Encyclopædia* stopped that. He also wrote a brief account of gardening for the *Encyclopædia Britannica*, in 1822, and for the seventh edition of the same work in 1834, a discussion of gardening on similar lines that in Brewster's. This was published in bo form in 1840.

The *Journal of a Horticultural Tour* was, already stated, published in 1823, its publicati having been delayed through various circu stances. The inception of the tour was due Sir John Sinclair, who had visited Flanders study its husbandry, and his observations l him to believe that a deputation from the Cal donian Society to inspect Continental garde would lead to improvement in Scottish practis Accordingly he made a proposition to that effe in 1815, and in 1817 it was decided that th survey should be made in that year, the mem bers to be Dr. Niell and Messrs. Hay an Macdonald. Hay was a planner or gard designer, formerly gardener at Archerfield. H laid out a number of gardens, one of his inn vations being a short wall standing out at a angle from the south wall of the kitchen gard in order to break the force of easterly ar westerly winds. Macdonald was the last t superintend the old gardens at Dalkeith, whic were replaced on his retiral in 1838, by mor extensive ones, by his successor, Jame McIntosh.

The writing of the book was delayed for quit five years. It is very readable, and the conclu sion arrived at by its author was that Scotlan had nothing to learn in gardening from th Continent. The first paragraph of the book i suggestive: "August 1, 1817.—We sailed fro Leith on the afternoon of the 1st of August in the Czar, one of those elegant and commo dious vessels which ply between that port an London. We made a prosperous voyage, havin entered the Thames in little more than fou days." After visiting some market gardens i London they set sail for Ostend, from whenc they travelled through Flanders and spent a con siderable time in the neighbourhood of Ghent viewing commercial and private gardens. In du course they arrived at Leyden, where they foun in the Botanic Gardens a flowering Ash, grafte by Boerhaave, a figure of which shows it t have a strangely malformed trunk. Anothe engraving shows Clusius' Palm—Chamaerop humilis, as pictured by Boerhaave, and as the found it. At Haarlem and its vicinity, the visited most of the bulb growing establishment

Noordwyk, now noted for bulbs, was then voted to Rose culture. They found the Voor- lm of that day to be a grandson of the corres- ident of James Justice, of the *Scots Gardener's rector*, and four representatives of Van Eden, re interviewed. At Amsterdam they were at- cted by two Apples—Gravenstein and Bors- rfer. At Utrecht, which was next visited, an l-fashioned Dutch garden is fully described, which were rare "pieces of sculpture," ottoes, fountains, "frogs and lizards spouting ter," and "other figures in still worse taste." vo verdant houses of Beech trees had a "very d appearance," but on the whole they enjoyed opportunity of seeing this remarkable 17th tury garden. In another garden they found Pear strange to Edinburgh—the Calebasse. ien at Brussels they inspected the royal gar- is of Laeken, which did not please them. Then y had a day at Waterloo viewing the field battle. Returning to horticultural matters in, they had a kind reception from Van ons, who told them he had raised 800 varieties Pears out of thousands worth propagating. is noted that Napoleon and Marie-Louise were sed by Duquesne; Beurré Bosc, Beurré Diel l some others by Van Mons. The next year n Mons sent grafts of about 50 sorts of Pears l over 30 of Apples to the Caledonian Society, ich were grafted by two Edinburgh nursery- n. Very few of these varieties are now in stence. In due time they left Picardy and ived at Paris, and under the guidance of Mr. ikie, a Scotsman settled in that city, visited the places of horticultural interest. The rché aux Fleurs made our author sad, that "ain toon" had no such market, though its vision had been mooted. Messrs. Andrieux— morin and Cie's establishments were then the st extensive in Paris, but the keeping of the unds was inferior to the Edinburgh nurseries. interesting account of the Peach gardens of ntrieul is given, with methods of cultivation. ey had a great field day in the nurseries of Noisette, who accompanied them. He cul- ated 600 varieties of Roses, and showed them new Rose of considerable beauty [that] has ly had the name of de Noisette bestowed on ' Other nurseries were examined and then to ppe for Brighton, and a look round more idon nurseries, and a visit to Covent Garden. Niell also called at a meeting of the Horti- tural Society, presided over by Mr. Sabine, l remarks how "members brought fruits and cimens of plants in their pockets." Potato ers and runners of Wilmot's Scarlet Straw- ry were offered to those who wished to try m.

he other book of Dr. Niell's is entitled *The uit, Flower and Kitchen Garden*, 1840; mine he third edition, 1844. It is well written and ses in rapid review the various practices then vogue, with short lists of varieties. Several Scotch Pears and Apples are highly recom- ded and they must have then been in general tivation. The book is well illustrated with ravings, reduced from those in *Encyclopædia itannica*, and were drawn by a son of Smith, dener at Hopetoun House; another son of om aided in the production of the book. *P. Brotherston.*

ORCHID NOTES AND GLEANINGS.

PRIPEDIUM FLETCHERIANUM VAR. ANTINEA.

Iessrs. Cowan and Co., Southgate, obtained First-Class Certificate at the Chelsea w for a very beautiful Cypripedium ned C. Antinea. The parentage is C. defroyae var. leucochilum × C. W. R. (var. Lord Derby), the latter being cross between C. Rothschildianum and C. erbiens. At the meeting of the Orchid Com- tee of the Royal Horticultural Society, ptember 25, 1906, Messrs. Low and Co. ained an Award of Merit and a Diploma for cross, which was described in *Gard. Chron.*, . 13, 1906, p. 254, Fig. 103. Messrs. Cowan's iety Antinea is distinct from the original, the petals being less deflected and bearing smaller dotted claret-purple lines on its wax-like, cream-yellow ground. In Messrs. Low's form the dark spotting on the pale yellow lip is well marked, while in Messrs. Cowan's form the spotting is smaller and lighter. It is a very remarkable Cypripedium and widely separated from the types usually seen in gardens.

ODONTIODA BANTINGII.

Messrs. Mansell and Hatcher, Rawdon. Leeds, showed in their group at Chelsea, among a good selection of handsome Odontiodas. this very pretty and distinct cross between Odontoglossum Uro-Skinneri and Odontioda Bradshawiae (C. Noezliana × Odm. crispum). The flowers, which have a wax-like white ground, are evenly spotted on the inner two-thirds with light mauve, all the segments being broad and well displayed. As usual with crosses of Odm. Uro-Skinneri, that species predominates in the general character of the hybrid. In this pretty novelty Cochlioda Noezliana may be traced in the lip and crest, although the colour of this parent is suppressed in Messrs. Mansell and Hatcher's hybrid.

ODONTOGLOSSUM CRISPUM CEPHEUS.

A flower of this very beautiful, home-raised form of O. crispum, sent by Messrs. J. and A. McBean, Cooksbridge, represents one of the choicest of the several fine forms exhibited by them in their splendid group at the Chelsea show. It is a true crispum of the finest type, but far superior to any imported form. The flower, which is of fine substance, is four inches across, the petals being two inches wide, pure white, and deeply fringed at the margin. The sepals are white, slightly tinged with mauve, the reverse side of the flower being similarly tinged. The showy lip is white, with a large chestnut-red blotch in front of the yellow crest, and the upper surface of the column is chestnut-red.

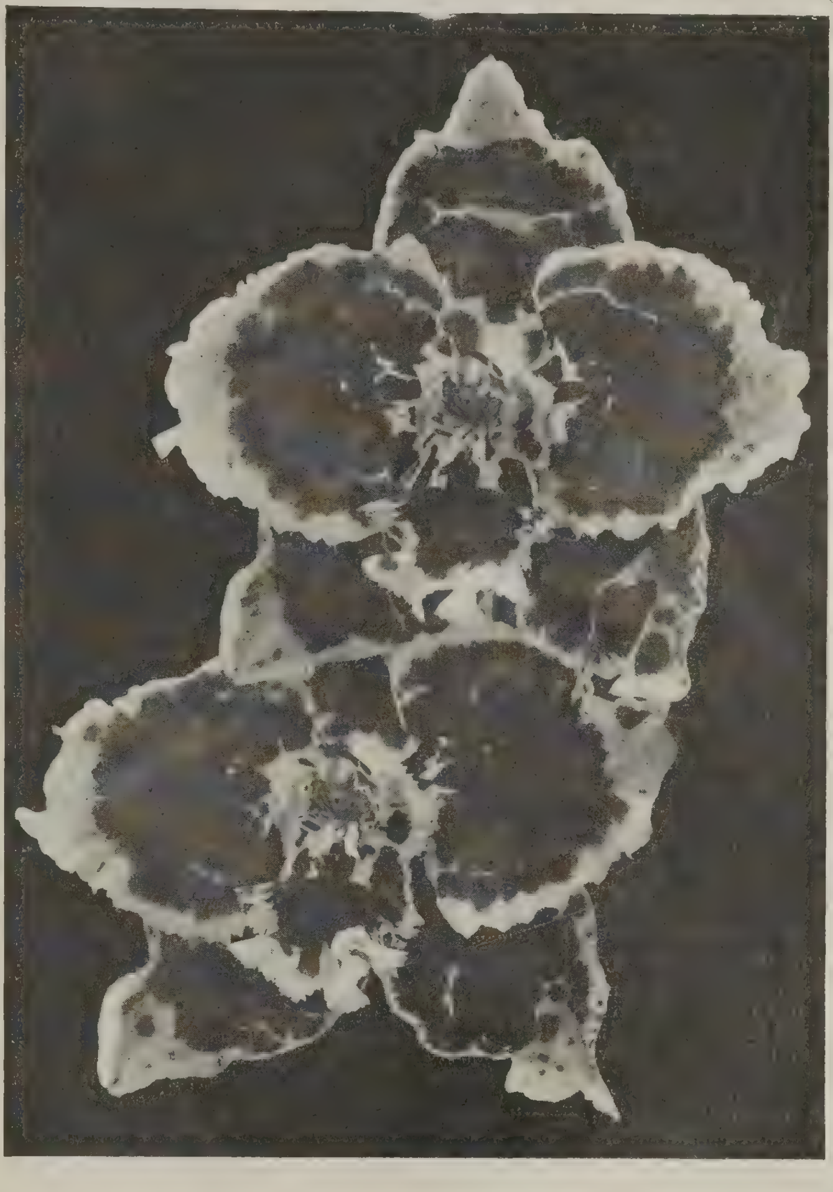

FIG. 155.—ODONTOGLOSSUM CRISPO-SOLON VAR CARMANIA; R.H.S. FIRST-CLASS CERTIFICATE, MAY 29 (SEE P. 302).

BRASSO-LAELIO-CATTLEYA QUEEN OF THE BELGIANS, LOW'S VARIETY.

Flowers of a specially fine form of this charming cross between Cattleya Mendelii and Brasso-Laelia Digbyano-purpurata are sent by Messrs. Stuart Low and Co., Jarvisbrook, Sussex. In some forms the narrowing influence of Laelia purpurata in the sepals is a detriment. In Messrs. Low's type the fine shape of Cattleya Mendelii predominates, and the result is a model flower from the florists' point of view. The flower, which measures 8 inches across, has silver-white sepals, and petals slightly tinged with mauve. The broad lip is white at the base, the expanded and fringed front lobe being rich violet-purple and the disc primrose-yellow.

Brasso-Laelio-Cattleya Queen of the Belgians received the Award of Merit of the Royal Horticultural Society, on May 2, 1916, when it was shown by Dr. Miguel Lacroze.

VEGETABLE GARDEN.

GLOBE ARTICHOKES.

The Globe Artichoke is an excellent vegetable of great delicacy, but is seldom so well cultivated as it deserves to be.

To obtain succulent heads of high quality it is essential to have young plantations, as plants usually lose their vigour after the third year and produce only inferior inflorescences. Although the plant is perennial, it may be treated as an annual, and plants raised from seed sown under glass in the spring and planted out in May or June make strong stools and bear a crop of heads in late summer and autumn.

Varieties do not always come true from seed, but if the latter is obtained from a reliable source, a large proportion of the seedlings is satisfactory, and a batch of seedlings greatly assists in maintaining supplies over a long period.

With good cultivation it is not difficult to have a succession of heads over a period of six months. The first supplies will be the terminal heads from established plants in May, and these will be followed in June by smaller heads from the side-growths. In July and August good heads may be cut from a plantation of strong suckers made in March, and during September and October heads from the seedlings will supplement the supply. If a cool house is available, a later batch of seedlings may be grown and transferred to it in late autumn. These will give occasional heads during the winter and early spring, when extra dishes of green vegetables are greatly appreciated.

The Globe Artichoke delights in a rich, moist, sandy loam, and readily responds to liberal treatment. A native of Southern Europe, it sometimes suffers from the effects of sharp frosts, necessitating some protection in severe weather, but care should be taken that the plants are not covered too densely. A good plan is to apply a heavy dressing of decayed vegetable manure in early winter, which serves as a protection during severe weather, and the manure may be forked into the soil in the spring.

Copious waterings are necessary in dry weather during the growing season, supplemented with regular supplies of liquid manure if available; failing this, frequent dressings of nitrogenous fertilisers assist the plant in the production of succulent heads. *W. Auton.*

POTATO TRIALS AT DROITWICH.

Continuing my remarks on Potato trials at Droitwich (see p. 262), the results given below were obtained in 1914, 1915, and 1916.

Twelve varieties were grown, for comparison, under equal conditions. The seed tubers planted weighed from 2½ oz. to 3 oz. each.

The soil was dark loam on gravelly clay, and the manure employed was old hotbed material, applied at the rate of about 12 tons per acre, supplemented by half the quantity of burned refuse from the garden, the ground being dug normally.

Several of the varieties show almost extraordinary variation in the rate of the weight of crop per acre during the three years of trial, there being first a rise in weight, then a speedy decline, not followed by other varieties. Several varieties fell in weight the second year, to rise again in the third year.

	1914.			1915.			1916.		
	t.	c.	lb.	t.	c.	lb.	t.	c.	lb.
Great Scot	17	16	28	12	7	14	8	15	11
Magnum Bonum ...	17	2	52	14	8	51	7	6	9
Ninetyfold	14	11	88	7	5	95	10	10	60
Satisfaction	12	8	6	8	18	29	8	18	29
Table Talk	10	16	43	13	7	14	4	9	14
Abundance	11	17	56	11	6	98	2	12	74
International Kidney	13	3	37	8	2	6	4	9	14
New Success	8	2	6	11	10	102	6	1	61
The Factor	7	1	89	3	16	109	14	11	78
Sharpe's Victor ...	8	10	17	12	7	14	2	12	74
White City	10	8	52	5	5	37	6	1	60
Duchess of Cornwall	7	17	63	10	10	75	2	4	63
	139	15	89	119	6	84	78	12	98

When making comparison between yearly crops of any kind, some consideration must be given to the rainfall during the respective years. Happily, the meteorological records for a series of years, including those for 1914-15-16, are at hand, showing that in 1914 rain was recorded on 182 days to the extent of 25.13 inches, in 1915 on 164 days to the extent of 28.20 inches, and in 1916 on 189 days to the extent of 26.48 inches. The aggregate of all the varieties for each year is for 1914, 139 tons 15 cwt. 89 lb.; for 1915, 119 tons 6 cwt. 84 lb.; 1916, 78 tons 12 cwt. 98 lb.

Thus it will be seen that rain alone does not account for the disparity in the different aggregates. Vigour, stamina, and several other items are factors, such as the strength and duration of daylight, the regularity of the water supply at the right period—the period of greatest growth and activity of the plant; and an adequate supply of suitable food at that period. Extremes of heat and drought, water and soil, do not appear to be favourable to good crops of Potatos.

In 1914 and in 1915 the largest amount of rainfall was during the second half of each year, July leading with 3.39 inches in 1914, and the same month with 4.74 inches in 1915.

In 1916 the rainfall for the first and second half-years was nearly equal, 13.00 inches falling during the first and 13.48 inches during the second half, the whole fall being spread over 189 days during that year. *J. Udale.*

A GARDEN SUBSTITUTE FOR FARMYARD MANURE.

(*Continued from page* 299.)

It is doubtful whether it would be worth while to use catch-crops on heavy soils, as, owing to their slow decomposition, it would be necessary to turn them in at least two months before the sowing of the succeeding maincrop. On light soils, where decomposition is rapid, it is certainly advantageous to leave the catch-crop on the ground so long as possible, and an interval of one month between turning it in and the sowing of the succeeding main crop is sufficient.

If it is worth while to grow crops to turn in for green manuring, it is surely worth while to conserve and turn into manure the large amount of waste vegetable matter which is available in such abundance in all gardens and estates.

The common practice of burning most of this matter on the bonfire cannot be too vigorously condemned, for the loss of potential soil fertility due to this destructive system of dealing with the matter is incalculable. It is realised that the prejudice against altering this state of affairs is very great. Probably it is because many good gardeners are so conservative: they retain old practices, and it is difficult to get them to discuss the problem. The circumstances controlling the supply of organic matter are, however, so definite that the minds which delight in its destruction must be converted to a study of the economics of the subject.

The great argument advanced by advocates of the eternal bonfire is that this lazy way of dealing with vegetable refuse is essential to prevent the spread of noxious weeds, pests, and diseases. A study of the facts show how fallacious this argument is. Undoubtedly such refuse will contain many weed seeds, and if the material is left in odd heaps the seeds germinate, reproduce themselves, and become distributed through various agencies, but under a system of controlled decomposition of this material any mature weed seeds germinate and become destroyed in the early stages of fermentation.

With regard to pests and diseases, it is very doubtful if the eggs and spores of these can remain virile after being subjected to the fermenting process, and in the case of spores the bonfire itself is probably a powerful disseminating agent. Material resting on the actual fire certainly becomes consumed, but myriads of spores towards the outside of the bonfire heap may be carried upward by the rush of warm air, and spread through the atmosphere over a very wide area!

Further, lovers of the bonfire always ext the value of the bonfire ash, because of i potash content, yet most of them fail to reali that the residual potassium salts are extreme soluble, and that owing to improper handli a very large portion of it fails to reach t roots of garden crops.

The problem, then, is how to deal with t waste vegetable matter which is so abundant available in all gardens. The following descri tion represents the methods adopted at Pyrfor by means of which a large garden has be kept in a high state of cultivation without t aid of farmyard manure.

At this stage, it should be mentioned th temperature may play a very important part determining the result of chemical reaction Frequently it is found that certain bodi which interact to produce certain substanc at one temperature produce something entire different at another. Consequently, in regul ing the decomposition of organic waste cannot afford to ignore the effect of temperatu though many would be disposed to regard it of small importance. Still further, if the te perature is too high valuable constituents m be lost through volatilisation.

The danger of too violent heating is alwa present when green, sappy material is used, a to obviate this, such material should be mix with that of a drier nature. Indeed it desirable to grade refuse into four classes follow :—

Class A.—Soft, green matter, such as la mowings, weeds, flower-bed and vegetable p trimmings.

Class B.—Material of a fibrous nature, su as the clearings of mature growth from t herbaceous border and kitchen garden.

Class C.—Woody matter, as the prunin from Rose and fruit plantations, shrubberi and hedge trimmings.

Class D.—Dead leaves, dry litter, a Bracken. These should be collected and stor during the winter months, and kept as dry practicable until required for mixing with t green material, as it becomes available duri the growing season.

The materials should be mixed in the follo ing proportions, as the refuse is collected. Th in Class A will need at least an equal qua tity of D; for Class B a proportion of two one of D will be suitable. As the material mixed it should be placed in wind-rows 2 f wide at the base and 2 feet high and ma firm. On the size of the wind-rows depends t intensity of the heating, so that if a greater less proportion of Class A is used the size shou be proportionately diminished or increased. the wind-rows are built the materials should moistened, if this is necessary, and the lay sprinkled with ground limestone.

If the wind-rows are kept to these dimensio over-heating is not likely to occur, but it wise to use a thermometer. If the temperatu rises above 90° F. the ridge should be turn and moistened, and when the temperature h become steady under 90° the wind-rows shou be thrown into a large heap and decompositi allowed to proceed naturally.

The time taken to effect the breaking down tissue naturally varies according to the natu of the material used. In the case of A and decomposition may be sufficiently complete in few weeks from the time of stacking it. Class B and D two or three months are neede The purposes for which the resulting product used, must, however, determine at what sta of decomposition it is best to use it. F digging in it is neither necessary nor desira that an advanced stage of decomposition sho be reached; for mulching purposes it is adv able to allow a greater breaking down of tissu if fine material is needed, complete decompo tion can be effected in from six to ten mont when most of it will pass through a sie giving a compost equal to the famo "*terreau*" of French gardens. This is excellent medium for root formation, and finer material can be produced for top-dressi lawns and or the preparation of seed-be *W. Auton.*

(*To be Continued.*)

HOME CORRESPONDENCE.

he Editors do not hold themselves responsible for opinions expressed by correspondents.]

What is a Rock Garden?—I ask this question ng to a difference of opinion between the ncil of the Royal Horticultural Society and three experts, Messrs. Stern, Bartholomew myself, the appointed judges of the Rock dens at the Chelsea Show. After careful parison and discussion as to what a rock den should be, we, the appointed judges, ided to give first prize to Mr. G. G. White- g, second to Messrs. R. Tucker and Son, and d to Captain Symonds Jeune. I was onished when I learnt that our decision had n upset by the Council, and, so far as I ow, without consulting the judges, Captain nonds-Jeune was awarded the first prize. It quite possible that other experts would have ne to a different decision than the appointed lges did. Taste differs with respect to rock dens, as it does in other matters. Still, I nk Messrs. Stern, Bartholomew and Watson probably as competent as any other three t could be selected, and that to flout this lgment as the Council did was wrong. What a rock garden? Mr. Reginald Furrer, in his at work, *The English Rock Garden,* dis- sses the question in his own inimitable way, t leaves it unanswered, warning the designer ainst certain mistakes, and stating that natural" effects should be aimed at, but at the art must be "selective and adaptive." at we must all agree with. There are many autiful bits in nature which would be un- autiful if removed to a garden. My idea of a ok garden is that of a garden designed for e successful cultivation of alpine plants. cept in very large gardens, the use of big ulders of stone is a mistake, however cturesque they may be in themselves. Im- sing piles of rock are not gardens. Nor are ch arrangements as are sometimes set up as k gardens—but which are nothing more than athered slabs of stone placed irregularly in rf with a few low growing plants set here and ere—in any sense a garden. It is not garden t to transfer big chunks of rock from Derby- ire or Westmoreland, or elsewhere, to the rden, and decorate them with suitable plants. cturesque if you like, but in no sense rock rdening. Judged by this standard, I main- in that some of the rock gardens set up at elsea this year were good examples, whilst hers were not. The question we judges put to rselves with regard to them was, if we had decide, which of those exhibited we would efer for the cultivation of a collection of rock ants, and as a pleasing rockery feature in our n gardens, and we all three selected that of r. Whitelegg. For the same reason we pre- rred Messrs. Tuckers' as second best. We mired the exhibit of Captain Symonds Jeune, t, as one of us put it, it was not exactly a ck garden; its value lay in being a good ample of how to make the best of a mass of one that nature had placed in the garden. he stones should always be looked upon as eans to an end, that end being the cultivation alpine plants in a garden which, without em, did not furnish conditions suitable to e welfare of alpines. The picturesque use of ulders in the garden was superbly shown in essrs. Gaze's exhibit, but that was not a ck garden. *W. Watson.*

Peas.—I have followed with much interest the scussion on cultivation of culinary Peas, as ven by Mr. G. H. Copley in *Gard. Chron.*, arch 31, p. 176. I agree with that writer garding the value of manure to the plant the bottom of the trench, but not the amount, r I consider 1 cwt. to every 12 feet of trench o be added to the soil when filling in) to be uite unnecessary, the resulting medium being too spongy a nature for the well-being of the lant. Peas so treated suffer more from drought an those grown in a more solid medium. In a ter article Mr. Copley states "within the last ree months I have assisted in the preparation ground for Peas on precisely the lines indicated in my notes." Perhaps, later, Mr. Copley will be good enough to give us, in your columns, the result of his labour. I am expected to supply Peas every day from mid-June until late autumn, and would like to give young readers the method I follow with success, but fear this would take too much of your valuable space. *R. Carter.*

——For the past 25 years I have grown Peas in trenches, as advocated by Mr. Copley and others. To-day, May 15, we have made two trenches 80 yards long, and these will be ready for sowing in three days. Broccoli leaves, weeds, etc., are, as a rule, put in the bottom of the trench. As our vegetable garden is in a rather exposed situation, tall varieties of culinary Peas are not grown. I know one grower who had very little farmyard manure owing to the family living away from home. Neither cattle nor horses were kept, and he was obliged to buy a certain amount of dung and mix the manure with leaves. I have known him to grow Peas in trenches with superphosphate mixed with the soil, without farmyard manure. I consider the practice we adopt an economical one, considering the time saved in watering, hoeing, etc., and it results in a much better crop. *J. McC.*

Gardeners' Wages.—In reply to *T. H.*, p. 232, I fail to see that the best gardeners get the best chances. I know of two middle-aged gardeners in the employ of a lady in this district. One of the gardeners was sixteen years with a builder, and the other several years on a poultry farm. I also know of two others, one a head, the other an under gardener, in this district. The head gardener was formerly a farm labourer, whilst the under gardener was for several years in the grocery business previous to taking up gardening, and I know others who have never been away from their birthplace to gain a better knowledge of their profession. I have been thirty years both in nurseries and private gardens, and have had a hard struggle to bring up three children on the low wages which have been paid me. During the war I had to carry on in the best way I could, and the pay for the hours I worked did not exceed 6d. per hour, notwithstanding I was foreman in a very large nursery producing food crops. Not many employers leave their gardeners who have struggled hard for a large number of years a legacy at their death. More experienced gardeners are out of employment than in any other trade. Gardening is a very interesting occupation, but I do not intend to let my sons engage in it for a livelihood. *H. P.*

Melon Fruits Cracking and Splitting.—Mr. Messenger, in his note on p. 270, states that cracking and splitting of Melon fruits is brought about by an excess of humidity in the atmosphere and a sudden rise in the temperature. As a grower of Melons for many years I have come to the conclusion that cracking is due to keeping the soil a little too moist when the fruit is on the point of ripening rather than any other cause. I have not been troubled much with cracking in Melons, but experience it now and again. My practice has been to keep the plants on the dry side at the roots whenever there is any sign of cracking, and by so doing I have always considered I have helped matters, but, like many other gardeners, I am still "at school" and am out to learn all I can. Perhaps some other growers will give us the benefit of their experience. *J. Treloar, Trevarno Gardens, Sithney Helston, Cornwall.*

Puzzles in Plant Names.—I wonder if Mr. Brotherston (page 201) has heard of the name Moonock as applied to the fruit of a well-known native plant. Growing on an island on Anagariff Lake, near Lough Neagh, in the north of Ireland, is a plant the fruit of which is known in the district by the name of Moonocks, why, I was for long unable to find out, though a query was inserted in several of the Ulster papers. On visiting the island, however, I found the plant to be **the Cranberry (Vaccinium),** and learnt that the fruit was used in the making of tarts and jam. *A. D. Webster.*

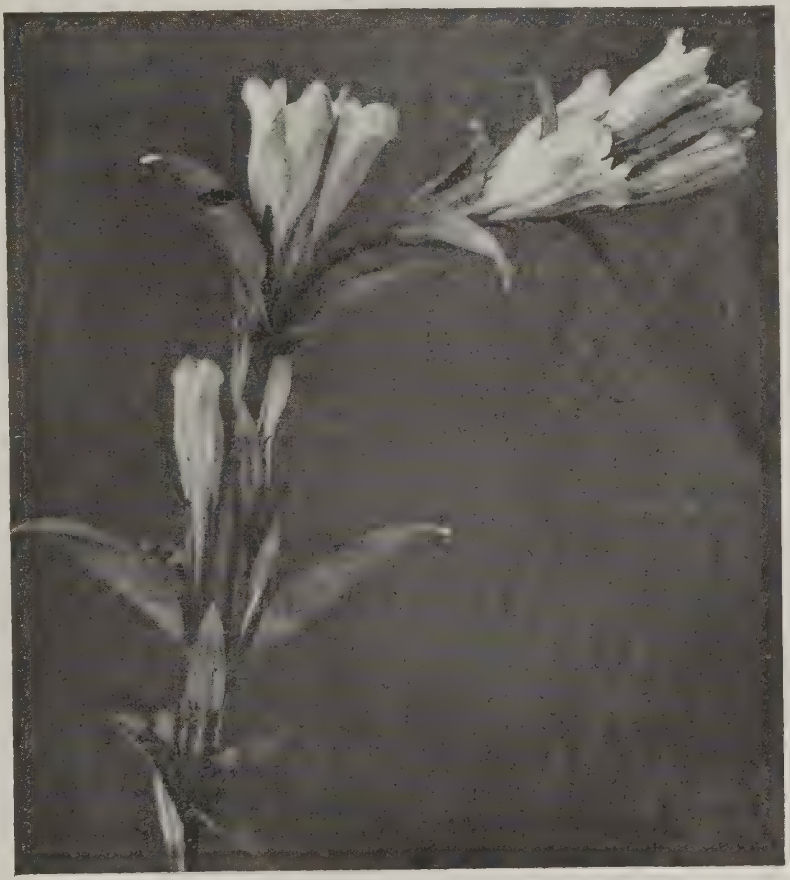

FIG. 156.—GENTIANA HOPEI; R.H.S. AWARD OF MERIT, MAY 29 (SEE P. 304).

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, May 3.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, J. Cypher, J. Evans, W. Giles, Dr. Hartley, A. Hanmer, J. Howes, J. Jackson. W. M. Jackson, A. Keeling, D. Losh Thorpe, J. Lupton, D. McLeod, E. W. Thompson, J. Whitham, and H. Arthur (Secretary).

First Class Certificates.

Odontoglossum Eros (*Othello* × *Doris magnificum*), a round flower of solid Plum colour, the lower half of the flat lip being pure white; *Laelio-Cattleya Gold Flake* (*C. Schröderae* × *L.-C. Elinor*), an orange-red coloured flower; *Cattleya Vishnu var. Snowflake* (*C. Undine* × *Luddemaniana Empress*), a pure white flower, the lip having a faint lemon-yellow shade in the throat. From S. Gratrix, Esq.

Odontoglossum crispum Lady Mary Cambridge, a large, round, white flower with occasional spots on the sepals; *Odontioda Le Papilon* (*Odm. Lambeauianum* × *Odontioda Cooksonii*), a flower of solid maroon colour, with white edges to the segments and the lip; *Odontoglossum nebulosum xanthotes*, a form with markings of dark yellow. From Mrs. Gratrix.

Odontoglossum Victory var. Duchess of York (*Armstrongiae* × *crispum*). The well-formed flower is heavily marked with light chocolate-brown. From A. Hanmer, Esq.

Odontioda Juno var. Mira (*Oda. Coronation* × *eximillus*), flower almost solid pink, with red markings on the segments and lip. From P. Smith, Esq.

Awards of Merit.

Lycaste Gratrixiae (*plana* × *Lawrenceana*); *Cypripedium Bellatulum var Seriathian*; *Odontoglossum crispum Faustina*; *Angulocaste Sanderae var. suavis* (*Anguloa Cliftonii* × *Lycaste Skinneri alba*). From S. Gratrix, Esq.

Cattleya The Bride (*C. Undine* × *C. gigas Firmin Lambeau*). From Mrs. Gratrix.

Miltonia Butterfly var. Radiant, from Messrs. Sanders.

Groups.

Gold Medals were awarded to S. Gratrix, Esq., West Point (gr. Mr. J. Howes), and A. Hanmer, Esq., Buxton (gr. Mr. Giles), for groups of Orchids in variety.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), staged a group for which a Large Silver Medal was awarded.

Silver Medals were awarded to the following for groups of Orchids: P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); B. J. Beckton, Esq., Irlam-o'-th'-Heights (gr. Mr. W. A. Stewart); J. Whitham, Esq., Crompton Hall (gr. Mr. E. Greaves); Messrs. J. Cypher and Sons, Cheltenham; and Messrs. Sanders, St. Albans. Mr. E. Shaw, Congleton, was also awarded a Silver Medal for a collection of paintings of Orchid flowers.

Thursday, May 17.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, J. Cypher, J. Evans, A. Hanmer, Dr. Hartley, J. Howes, A. Keeling, Dr. McLeod, E. W. Thompson, and H. Arthur (Secretary).

First Class Certificates.

Odontoglossum W. E. Bissett, a large, well-shaped flower of chocolate-red colour with white fringe; *Odm. harvingtense Rosslyn var.*, a pale yellow flower with brown spots on the sepals; *Vuylstekeara Memoria Joseph Charlesworth* (*Oda. Brewii* × *M. Charlesworthii*), a deep maroon coloured flower with a flat lip; *Miltonia Venus var. Fascinator* (*M. vexillaria* × *M. Phalaenopsis*), a variety with a beautifully lined lip. From H. T. Pitt, Esq.

Brasso-Cattleya Pallas magnifica (*B.-C. Digbyano-Mossiae* × *gigas Sanderiana*), a large, well-shaped flower, the base of the lip being deep orange colour. From Mrs. Gratrix.

Brasso-Cattleya Enchantress var. Lady Primrose (*B.-C. Digbyano-Mendelii* × *C. Fabia alba*), a flower of sulphur-yellow colour, the base of the lip being a darker shade. From S. Gratrix, Esq.

Vuylstekeara insignis var. Marigold (*Odta. Charlesworthii* × *M. Bleueana*). The colour is rich marigold yellow deepening in tone at the base of the segments. From P. Smith, Esq.

Awards of Merit.

Odontoglossum Antinous (*Othello* × *crispum*); *Odta. Cardinal* (*Oda. Schröderae* × *Odm. eximium*); *Cypripedium Enchantress* (*Curtisii* × *Alma Gavaert*). From H. T. Pitt, Esq.

Cattleya Schröderae Duchess of York; *Laelio-Cattleya Canhamiana Sunray* (*L. purpurata Queen Alexandra* × *C. Mossiae Reineckiana*). From S. Gratrix, Esq.

Miltonia Sanderae var. Painted Lady. From Capt. W. Horridge.

Cattleya intermedia Aquinii. From P. Smith, Esq.

Groups.

S. Gratrix, Esq., West Point (gr. Mr. J. Howes), was awarded a Gold Medal for a group.

H. T. Pitt, Esq., Stamford (gr. Mr. F. W. Thurgood), staged a group for which a Large Silver Medal was awarded.

Messrs. J. Cypher and Sons, Cheltenham, were also awarded a large Silver Medal for a group in variety.

BATH AND WEST OF ENGLAND.

We regret that in our reference to this exhibition (see p. 293) our reporter inadvertently omitted to state that Messrs. English and Son, Eventyde Rose Nurseries, Gloucester, exhibited a group of Roses in pots. This interesting display, which was much admired by H.R.H. the Prince of Wales, was eight feet in width and twenty feet in length.

WAKEFIELD AND NORTH OF ENGLAND TULIP.

The 87th annual show of the Wakefield Tulip Society, with which is incorporated the North of England Tulip Society, was held at the Brunswick Hotel, Wakefield, on Saturday, the 19th ult. The show this year suffered both as regards quality and quantity from the weather; notwithstanding the severe cold, nearly four hundred blooms were displayed. In the principal class for nine blooms consisting of three bizarres, three byblomens, and three roses, one of each set to be a breeder, one feathered, and one flamed, Mr. C. W. Needham, Hale, Cheshire, was first with Cyrano, Athos and Jezebel (breeders); Attraction, Sam Barlow, Trip-to-Stockport, George Edward, Mrs. Collier, and Annie McGregor; 2nd, Mr. J. W. Bentley, Castleton, near Manchester, who showed Sulphur, Talisman, Rose Hill (breeders), Sir Joseph Paxton, Gleam, Trip-to-Stockport, Aglaia, and Gloriana; 3rd, Mr. Chas. J. Fox, Moseley, near Birmingham. Mr. Needham was also successful in the class for six breeders, dissimilar, in which he showed Arthos, Cyrano, Annie McGregor, Lucy Luard, Robin, and Rhoda; 2nd, Mr. C. J. Fox with Sir Joseph Paxton, Gleam, Lucy Luard, Mrs. Douglas, Eos, and Rose Hill. Mr. Needham also won first prizes in the class for (1) two feathered blooms and (2) for two flamed blooms, as well as the special premier prizes in the open classes with Attraction (feathered), George Edward (flamed), and Annie McGregor (breeder). In the local classes, Mr. S. F. Richmond was placed first for six recified Tulips, dissimilar; Mr. I. Hewitt first for six breeders, dissimilar, and Mr. Robert Robinson first for three breeders, dissimilar. The last-named exhibitor was very successful in the single bloom classes, winning first prizes for breeders bizarres, feathered bizarres, breeders byblomens and flamed byblomens. Mr. I. Hewitt showed the best rose breeders; Mr. S. F. Richmond the best flamed bizarres and the best feathered byblomen and the best feathered rose, and Mr. E. H. Robinson the best flamed rose.

KEW GUILD.

The annual meeting of the Kew Guild was held on Wednesday, the 30th ult., at the Imperial Hotel, Russell Square, and was, as usual, followed by a dinner. The chair was occupied by Mr. W. J. Bean, Chairman of Committee, and there were about sixty of the members present The Secretary submitted the annual report of the Committee, of which the following are extracts :—

> The receipts for the year amount to £113 3s. 5d., and the expenditure to £14 10s. 5½d. These figures include the War Memorial Fund balance of £29 0s. 6d.
>
> The retirement of Mr. W. Watson and the appointment of Mr. W. J. Bean as Curator again necessitates a change in the trusteeship of the Guild funds. Mr. W. J. Bean has kindly consented to be a trustee.
>
> The Committee regret to record the resignation in July, 1922, of Mr. A. Osborn, who has so ably carried out the duties of Secretary and Editor since 1914. Mr. A. C. Bartlett has acted for the remainder of the year, and as he is unable to continue, the Committee propose Mr. E. G. Dunk as Secretary and Editor.
>
> The members of the Committee who retire are Major T. F. Chipp, Messrs. J. S. Christie, W. Dallimore, R. L. Harrow, and W. H. Johns. The following have been nominated to fill the vacancies:—Messrs. G. H. Banks, H G. King, T. H. Patterson, W. Taylor and H. Williams, and Mr. K. E. Tomas to represent the sub-foremen, and Mr. F. L. Squibbs the student gardeners. As Mr. Bean, who has only acted in a temporary capacity, retires from the position of Chairman of Committee, Major Chipp has been elected to that post.
>
> Mr. J. Coutts has kindly consented to again be nominated as Hon. Treasurer, and Messrs. W. Hales and W. H. Johns are recommended as auditors for the ensuing year.

In proposing the adoption of the report, Mr. Bean referred to the late appearance of the *Journal*, for which, he said, the Committee as a whole was responsible, but the late appearance was really due to the Secretary, Mr. Bartlett, who had been very busy with his other work. The *Journal* was in type, and Mr. Bean expressed the opinion that it was a very good number. Mr. Bartlett had resigned, owing to pressure of business, and the Committee recommended Mr. Dunk, a member in the Curator's office, for the offices of Secretary and Editor. Experience had shown that it was almost essential that the Secretary should be a member of the Kew staff, and Mr. Dunk would have exceptional opportunities of reading correspondence from old Kewites in all parts of the world, and thus be able to obtain interesting matter for publication in the *Journal*.

Mr. J. Coutts, the Treasurer, gave a few details of the financial position, and stated that there was a balance in hand of £160 odd. It was proposed, he said, to utilise the balance of the War Memorial Fund to form a nucleus for educational purposes. There was a balance on the capital account of £86 3s. 3½d. The Committee had written down the value of the back numbers of the *Journal*, which had no great value, and might be regarded as waste paper. Notwithstanding the satisfactory balance of £163, Mr. Coutts pointed out that the *Journal* for the present year would cost from £60 to £80, and as it had been decided that in future it should be issued in January, they would be called upon to pay for two *Journals* in the present year.

The adoption of the report was seconded by Mr. G. F. Tinley, who thanked Mr. Bartlett for his kindness in acting as Secretary at a time when no one else was willing to undertake the office.

Mr. John Weathers stated that he did not agree with the Treasurer's remark that the old *Journals* were valueless. He regarded them as of great worth. A complete set of the *Journal* was a most valuable possession, and would be prized in future even more than to-day.

Mr. C. H. Curtis, a member of the Committee, stated that Mr. Bartlett was elected Secretary in his (Mr. Bartlett's) absence, and at a time when no one in the gardens at Kew would accept the office, and that it was only pressure of other work which had been the ause of the delay in editing the *Journal.* The report and balance-sheet were adopted.

Mr. Horton suggested that the annual meeting nd dinner should be held at Kew, and it was greed that his proposition should be forwarded s a recommendation to the Committee. Votes of thanks to Mr. Coutts and the Chairman concluded the business proceedings.

Some hundred and thirty of the members hen sat down to an admirable dinner, at which Mr. J. Masters Hillier, President for the year, presided. The chief toast of the evening, "The Kew Guild," was proposed by the President, who stated that he was pleased to see so many ladies present. It was, he said, he thirtieth year of the Kew Guild, and much history had been crowded into those years, in which Kew men had played a conspicuous part. He extended a special welcome o the members present from overseas, including Mr. and Mrs. Patterson, from the West Coast of Africa, Mr. Sillitoe, from Khartoum, Mr. Butler, from British East Africa, and Mr. Burtt Davy, from South Africa; Mr. Hillier coupled the name of the last gentleman with the toast. Mr. Davy, in a lengthy speech, gave some valuable hints as to the openings for Kew men in the Colonies and Dependencies now that many of the official appointments in those parts were reserved for Colonial-trained men. He said that during the many years since he was a member of the Kew staff he had travelled over the face of the earth, and it had been of great interest to him to note in many distant countries that a Kew man was carrying on the white man s burden, and upholding the high traditions of Kew. The opportunities for Kew men abroad were not the same as in the past, for the Colonial-trained man was coming into his own, and the agricultural training colleges in the Colonies were turning out men who were filling the official appointments. He suggested that the Guild should try to get from Kew men overseas a knowledge of the openings, other than Government posts, for those trained at Kew. The municipal positions abroad, he said, offered such scope to men with the Kew training, but there was no scope in market gardening, which was carried on by Italians and Chinamen. He suggested that young men with some amount of capital and the Kew training might go to the various Colonies and start business after acquiring a knowledge of the local conditions, as he felt sure that in the cultivation and distribution of native plants, especially in South Africa, there was an excellent opportunity. He also pointed out that in the development of Colonial estates men with a Kew training plus a gift of organisation were, and would in the future be still more, in demand.

Dr. Hill proposed the health of the President, Mr. J. Masters Hillier, which was heartily received. Mr. Hillier responded in a few well-chosen words.

The pleasure of the reunion was increased by musical items provided by members of the Guild.

NEWCASTLE AND DISTRICT HORTICULTURAL.

Mr. T. A. Lawrenson delivered a lecture on "Alpines" at the monthly meeting of this Society held on the 22nd ult. Mr. Lawrenson stated that rock plants may be used for a variety of purposes, including edging subjects to paths and hardy herbaceous borders, for growing in beds on lawns in the formal garden, or draping unsightly walls, the ornamentation of garden steps, etc. He deprecated the making of rock gardens in hollow places, as such hollows form frost pockets, exposing the plants to injury from excessive cold. In the disposition of the stone he emphasised the importance of displaying the strata of the stone as being natural. Points to consider in planting, he said. are colour effects and the selection of lowers that will bloom over the longest period. Other points dealt with were propagation by cuttings and division, mulching. suitable soils and mixtures, and the best type of stone.

ROYAL HORTICULTURAL.

GARDEN SUNDRIES AT CHELSEA.

May 28, 29 and 30.—The many adjuncts—necessary and otherwise, but mostly necessary—to present-day and successful gardening occupied their accustomed place along the Lime Avenue. It was interesting to note that despite the most uncomfortable weather there was a constant stream of visitors inspecting, with intelligent interest, the many varied exhibits. As was only to be expected, the many preparations for destroying insect pests or for preventing their infesting plants drew the greatest number of visitors, and it seemed that it was a certain and reliable "cure" for white fly which was most in demand. The Alvesco Red Star brand of white fly fumigant manufactured by Messrs. **Murphy and Son** was confidently recommended as one of the most reliable specifics.

The **Abol Co.** also displayed a compound which is especially prepared to combat white fly in Tomato and Cucumber houses. On the Abol stand were various other preparations and also the well-known and valued Abol syringes and sprayers. Fertilisers, spraying compounds and appliances were exhibited by Messrs. **Edward Cook and Co., Ltd.**, while Messrs. **Wm. Cooper and Nephews, Ltd.**, gave prominence to their V2 compound, which is especially recommended for spraying Rhododendron bushes both as a preventive and destroyer of the Rhododendron bug which, in some gardens, is causing considerable injury.

Letharion vapour cones had the chief place amongst the fumigants displayed by Messrs. **Corry and Co.**, who also set out in an attractive manner a variety of sundries, including dyed Raffia and their "Summer Cloud" shading which, although not particularly required at the moment, is certain to be in demand later. A new firm amongst the exhibitors in the Lime Avenue was the **Cross Bone Manure and Lime Co., Ltd.**, who displayed samples of bones crushed finely by machinery and not dissolved by means of acids.

Dyoweed, a non-arsenic preparation, whose use is well indicated by its name, and Rectisol, which is recommended as being at one and the same time destructive to insect pests and of fertilising value, were the chief items set out by Messrs. **Hawker and Botwood, Ltd.** Jeyes' Sanitary Compounds included their well-known horticultural washes and a soap which removes grease and dirt, even including tar, quickly from the hands without unduly roughening the skin.

Katakilla, which, besides being deadly to caterpillars of the many sorts which vex the gardener, is also valuable for spraying green-fly infested plants, was prominent in the stand of Messrs. **McDougall and Robertson.** They also showed their Kallamist sprayer which is recommended for use by amateurs. By an ingenious arrangement the spray may be automatically turned off. Many other appliances and specifics were also to be seen in this exhibit.

The old and proved Ichthemic Guano was attractively displayed by Messrs. **Prentice Bros., Ltd.**, and alongside, in very bright wrappers, was Tomorite. This was one of the most attractive of the sundries exhibits, and in addition to their artificial manures Messrs. **Prentice** had bunches of excellent Cannon Hall Muscat Grapes, flats of Cucumbers and baskets of Tomatos grown by the aid of their preparations, while vases of Tarzan Carnations grown by Mr. C. **Engelmann** added dazzling floral colour to the stand.

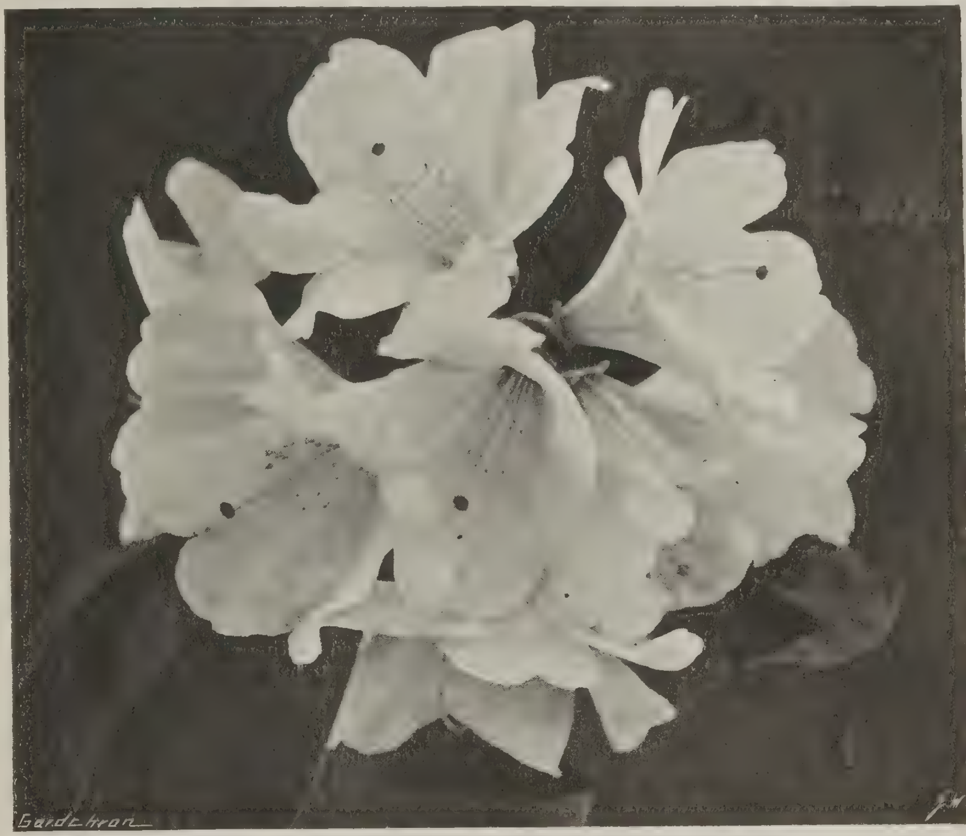

FIG. 157.—RHODODENDRON PINK SHELL; R.H.S. AWARD OF MERIT, MAY 29 (SEE P. 304).

Chief amongst the exhibits of Messrs. **Robinson Bros., Ltd.**, were Carmona and their Multiple Lime Sulphur Wash. The **Stonehouse Works Co.** displayed, in addition to their well-known knapsack and other sprayers, such fertilising spraying preparations as Potomo, Vitalizer and Kilzall, with Eelite recommended as an antidote against eelworm in Daffodils and other plants. Borderite and Blighty, for use as a preventive against Potato Blight, were attractively staged amongst many other preparations by Messrs. **Walter Voss and Co.** Messrs. **Wm. Wood and Co.** had a great variety of insecticides, sprayers and garden implements of all kinds, while the **Buxton Lime Firms Co.** showed samples of lime preparations.

The well-known Four Oaks knapsack sprayers were included in an exhibit of such appliances and tools by the **Four Oaks Spraying Machine Co.** Mr. J. **Haws** had an extensive display of his useful watering-cans. The "Ubel" sprayer was shown with other patterns by the United Brassfounders and Engineers, Ltd.

Many model and full-sized greenhouses and garden frames were erected in the avenues, and they were often used as a harbour of refuge by the visitors who were able to appreciate their structure and design. Messrs. Boulton and Paul had a well-designed amateur's greenhouse, which, being in sections, may be erected quickly and, if necessary, easily taken down and replaced elsewhere. Their frames were of a useful and substantial type.

Besides greenhouses and frames, Messrs. J. Gray, Ltd., showed perforated galvanised iron flower pots of great interest. For Tomatos they recommend a round bottomless pattern, while their Chrysanthemum pot is square and raised above the ground level to ensure perfect drainage. Useful glass structures were erected by Messrs. Pratten and Co., while Messrs. A. Smellie and Co. had their patent greenhouse repairing apparatus, with garden tools.

A good example of their well-known greenhouses was erected by Messrs. W. Duncan Tucker and Co., Ltd., who also exhibited garden frames of equally good design and workmanship, together with an attractive garden shelter.

In the main avenue Messrs. David Swain and Co. showed a useful glasshouse adaptable for growing either plants or fruits, and also had excellent garden frames. Messrs. J. Weeks and Co. displayed glasshouses of good design complete with heating arrangements, and also garden frames. "Wire tension" greenhouses were exhibited by Messrs. Skinner, Board and Co. Valuable greenhouses and heating boilers with piping were displayed by Messrs. Messenger and Co., while Messrs. C. P. Kinnell and Co. had examples of their garden hose in addition to ventilators and other garden sundries.

A good span-roofed greenhouse and garden frames were erected by Messrs. Drummond and Co.

Garden netting on easily fixed supports was erected by the House and Garden Sundries Co. The various sizes are adapted for protecting seed beds and fruit quarters. Besides these they displayed their handy little seed sower and clips for attaching growths to walls.

Amongst the many exhibitors of garden furniture were Messrs. J. Carter and Co., who had seats and chairs of comfortable design and tables suitable for placing either in summer houses or out of doors. Messrs. J. Carter and Co. also showed their Ideal sprayer with various insecticides and manures. The Acme Patent Ladder Co. and Messrs. Drew, Clark and Co. demonstrated the ease in use of their ladders. The Chase Continuous Cloche Co. had their patent cloches. Other sundries exhibits included garden ornaments in lead and stone and wrought iron gates were set up by Messrs. T. Crowther and Son; "Dryad" can furnitude, "Italia" garden pottery, sundials and vases by Messrs. Kelly and Co.; the "Betty Swing Couch" by Messrs. B. Maggs and Co.; various garden tools by Messrs. R. Melhuish and Co., Ltd.; bird-baths and other stoneware by Messrs. A. H. Moorton and Co., Ltd.; garden furniture by the Papworth Industries; garden tents by Mr. H. E. Pocock; "Ravenscourt" garden pottery, trucks and barrows by Mr. H. C. Slingsby; seats and tables by Messrs. Thos. Syer and Co.; garden seats and chairs by the Castles' Shipbreaking Co., Messrs. A. W. Gamage and Co., Messrs. Harrods, Ltd., Messrs. Hughes, Bolckow and Co., and the Homebilt Co.; folding tables by Messrs. Abbott Bros., and stone ornaments by Messrs. Sanders and Co.

Amongst the various lawn mowers those driven by motors attracted considerable attention and nearly all were strongly made, simple to handle, yet light in construction. The principal exhibitors were Messrs. T. Green and Son, Ltd., who displayed their Silens Messor with other patterns; Messrs. C. H. Pugh, Ltd., the makers of the valuable "Atco" mowers; Messrs. Ransomes, Sims and Jeffries; Messrs. A. Shanks and Co. and Messrs. Dennis Bros., Ltd., who also had motor pumps. Turves of good fibrous loam were attractively set out by Mr. A. B. Johnston, while Messrs. H. Scott and Sons had loam and a new type of garden barrow. Messrs. Bakers, Ltd., showed a well-designed model garden. A pot Rose with the pot split so as to show the root development was exhibited by Messrs. Fertabs, Ltd., who make "Pills for Plants." Their excellent fruit preserving appliances were displayed by Messrs. Lee, Fowler and Co. Various garden requisites were arranged by Messrs. Thos. Gunn, Ltd. Mr. C. A. Jardine, the Wilkinson Sword Co. and Messrs. Holtzapffel and Co. had sécateurs and other cutting implements of good make.

The Key Fertilizer Co. had a table of mown turf showing the value of their fertilisers. Included in the exhibits by Mr. H. Pattisson were useful horse boots. Mr. J. Pinches had a wide range of his well-known garden labels, and Mr. E. H. Taylor, Ltd., showed beehives and fruit storing appliances.

The Gardeners' Chronicle, Ltd., displayed useful books on gardening, coloured plates, and bound volumes of the *Gard. Chron.* in an attractive new kiosk, near the entrance.

Scientific Exhibits at Chelsea.

In a smaller tent at the Embankment end of the larger tents, there were "Exhibits Illustrating the Work of the Society's Gardens at Wisley," and an "Information Bureau at which visitors may apply for help in garden difficulties and on points of horticultural practice." Besides these valuable features there were exhibits of interest and great value from other scientific quarters. Mr. F. T. Brooks showed, from the Botany School, Cambridge, specimens of Silver Leaf disease, with notes on its life history and treatment.

Professor V. H. Blackman, Imperial College of Science, South Kensington, had a "Technology Apparatus for Plant Physiology," which demonstrated the increased vigour and improved health of seedling plants when grown in air enriched with carbon dioxide. Alongside these were examples of the fungous diseases of cultivated Apples.

Dr. Geo. H. Rodman, 10, Hazlewell Road, Putney, contributed a large series of excellent transparencies of pollen grains, illustrating the great variation in shape and size

Messrs. C. Hearson and Co., Bermondsey, staged their bulb bath for the treatment of bulbs infested with eelworm, and Messrs. Allwood Bros. had boxes of young Carnation plants as packed for export.

Messrs. George Bunyard and Co. set out in an informative manner flowering and fruiting branches showing the species from which cultivated Red Currants have been derived.

The R.H.S. exhibits included diagrams and growing fruit bushes—mostly Apples and Plums—which showed that such fruits and Pears require foreign pollen to enable them to bear good crops. Many different plants suitable for cultivation for "green manuring" were displayed, and the relative value of such as Vetch, Rape, Red Clover, White Mustard and Black Medick could be seen at a glance. There were also herbarium specimens of the different leaf miners which attack such plants as Marguerites, Cinerarias, Hollyhocks, Carnations, Chrysanthemums and Celery, and also lifelike specimens of insects beneficial to gardeners; forest tree pests, and the germination of seeds and development of the embryo.

A series of pot plants showed the devastating effects of the Phlox eelworm, and there were coloured plates illustrating the different types of Dahlia.

Adjoining their display of greenhouse Carnations, Messrs. Stuart Low and Co. had a particularly interesting and varied collection of New Holland and other greenhouse plants. These included floriferous standards, bushes, and quite dwarf examples of Metrosideros floribunda, Aotus gracillima, Asclepias curassavica, Raphiolepis ovata, the richly-coloured Bougainvillea Mrs. Batt, Leptospermum Nicholii, N. Boscaweni and Erica Cavendishii. Besides these, which are not so frequently grown as formerly, they displayed good plants of Gloxinias and Anthurium Scherzerianum varieties.

Obituary.

Rev. Canon. W. W. Fowler.—Our readers wil deeply regret to learn of the sudden death o Canon Wm. Weekes Fowler, Vicar of Earley, Reading, who was taken suddenly ill in his vestry on Sunday morning, the 3rd inst., and died soon after the service had begun. Th late Canon was a keen horticulturist and had a strong scientific bent. He was president of the Entomological Society of London in 1901-2, a vice-president of the Linnean Society, and a member of the Royal Horticultural Society's Scientific and Narcissus and Tulip Committees. As a gardener, Canon Fowler's chief interests were in late-flowering and old English Tulips. He was a well-known personality at the R.H.S. meetings, and it wil be remembered that he addressed questions t the chairman at the last annual meeting o the Society. He was the son of the Rev. Hugh Fowler, Vicar of Barnwood, Gloucester, and was born in January, 1849. He was an old Rugby scholar, and a graduate of Oxford where he obtained a first in Classical Moderations. He was appointed a master of Repton in 1875, and in 1880 was elected headmaste of Lincoln School, where he remained for mor than twenty years. He was a Canon o Welton Brinkhall in Lincoln Cathedral, and had been Vicar of Earley since 1904.

Owen Thomas, V.M.H.—With a feeling o deepest regret I learned the news of the passin of this fine old member of our profession, an though I had known of his very severe indisposition for some while before his death, yet hoped to hear of his recovery, and believed hi fine constitution would help him to regain hi health. Alas! It was not to be, and the ca came for this exceptionally fine old gardene Greatly esteemed by all, those who knew hi well will always bear testimony to his gentle manly and refined manner; by his death w have lost one who was a particularly skilfu gardener, and a man of the highest integrity who was ever ready to help members of hi craft aiming and struggling to make headwa therein, and would do all he could to assis them along the road to success. In his time h filled some of the best positions with complet satisfaction to his employers, and great cred to himself, crowning his career, just over thirt years ago, when he had the honour of bein appointed gardener to Queen Victoria, a Windsor. A keen judge of a good fruit o vegetable, his help was always greatly apprec ated by the Fruit and Vegetable Committee o the Royal Horticultural Society, of which Com mittee he was a member for many years. B his passing, another of the original holders o the Victoria Medal of Honour leaves the rank as he received this recognition in 1897. H death will be very greatly regretted by thos who, like myself, knew and respected him wel
Edwin Beckett.

TRADE NOTES.

The annual general meeting of the nurser firm of John Russell, Ltd., was held at th Haverstock Hill Nurseries on the 4th ins Mr. J. B. Slade, of the firm of Messrs. Prother and Morris, chairman of John Russell, Ltd. presided. In presenting the accounts to th shareholders, Mr. Slade said that the positio of the Company was now very favourable, net profit of over eleven hundred pounds havin been made during the year, and every accou had been paid up at the end of April. The was about £600 in reserve, which almos amounted to the figure standing to the credi of goodwill, and certain bonuses had been pa to the staff over and above their wages consideration of the good work they had don A dividend of 25 per cent. was declared on th ordinary shares, over and above the 7 per cen payable on the preference shares. The chai man observed that if any holder of shares the company wished to dispose of part of h shares, or to increase his holding, it would assistance if he would forward his name to e secretary of the company at Haverstock ll, N.W.3, so that he could compile a list such shareholders and accommodate them as portunity arose. The auditors were reapinted for the forthcoming year, and a vote thanks to the chairman terminated the proedings.

The Ministry of Agriculture and Fisheries ns had under consideration for some time st the question of the revision of the Orders ade for the control of Wart Disease of tatos in England and Wales. Potato growers d merchants will remember that the first ep in this revision was taken in November, 21, when an Order was issued allowing any riety of Potatos to be planted on land not fected with Wart Disease, whether in incted areas or not. Since that date, the conquential changes which must necessarily company such a relaxation have been carelly considered by the Ministry's Potato Adsory Committee, whose recommendations have en endorsed by the Agricultural Advisory mmittee and accepted by the Minister. The inister has now made an Order embodying ese changes. This Order came into force on ne 1, and revokes all previous Wart Disease rders in the Ministry.

In a schedule to the Order is defined the ain infected area in this country, which cludes all Wales and Monmouth, the whole the counties of Cheshire and Stafford, South ncashire, North Salop, and the adjacent roughs of Birmingham and Sutton Coldfield d parts of the counties of Worcester and erby. In addition, all other lands scheduled der previous Orders are infected areas under is new Order. Briefly, the Order continues e existing regulations concerning outbreaks the disease, the prohibition of the sale of seased Potatos, and the planting of Potatos infected land; and further provides (1) that e only Potatos which will be allowed to go t of infected areas into clean areas are ware" Potatos of approved immune variees, and also (2) that no Potatos may be anted, or sold for planting, anywhere in ngland or Wales unless they have been preously certified for seed purposes as laid down the Order, or, in the case of foreign otatos, unless their planting or sale for anting is licensed by the Ministry. Growers ntemplating the sale of seed Potatos from e present year's crop should make early plication for certificates, as in many inances the Ministry's officers will need to spect the growing crop to ascertain its freem from the disease before the certificates n be issued A grower will, however, not be revented from planting his saved seed from previous year. Restrictions are also placed the sale of seed and "ware" Potatos imrted from Scotland or Ireland.

ANSWERS TO CORRESPONDENTS.

estroying Large Red Ants: *C. S.* Many species of ant may be destroyed or driven away permanently by means of a strong solution of carbolic acid—one part of the acid to twelve parts of water. Disturb or break the top of the heap, and the ants will swarm out in enormous numbers. Then distribute the solution over the ants with a rose on the can, or by means of a syringe at a safer distance. Pour some of the acid into the centre of the heap so that it will sink deeply into the soil. The ants do not like the smell of carbolic acid; they also attempt to clean one another and get poisoned, so that the more of them you wet by this means the more will be destroyed. The top of the heap may easily be uncovered by means of a long-handled hoe or rake.

ouble Buttercup: *G. H. J.* There are many double Buttercups, including Ranunculus asiaticus from the Levant; R. aconitifolius flore pleno, or Fair Maids of France, from the Alps of Europe; and R. bullatus flore pleno, from South Europe. All three are in cultivation, unless the last has been lost within the past few years. Three British Buttercups are very common, and all are in bloom at the present time. R. acris flore pleno, or Yellow Batchelor's Buttons, is the most popular in gardens. R. bulbosus flore pleno is recorded in gardening dictionaries, and so is the double form of R. repens flore pleno, or Creeping Crowfoot, but neither of these two is in cultivation. That you send is R. repens flore pleno, and is a very double form. Flowers with six to nine petals or more are not uncommon in the wild state, but the fully double form you send is not common. If it flowers freely it would be worth cultivating. Plant it in a sunny situation where the soil is not too dry.

Flannel Weed: *J. C.* Flannel weed may be killed by copper sulphate, but before applying this material you should remove as much as possible of the weed by skimming it from the water. Ascertain the amount of water contained in the moat by multiplying together the average length, breadth, and depth, and multiplying the result (in feet) by 6¼, the approximate number of gallons in a cubic foot. This will give you roughly the number of gallons of water in the moat, and one pound of copper sulphate should be used to every 100,000 gallons. Break the copper sulphate into small portions, and tie it in a bag of loosely woven material, such as coarse sacking. Then tie the bag to the end of a long pole and draw it along in the water in parallel lines.

Gardener's Notice: *E. C.* It has been held by the High Court that a head gardener is to be regarded as a domestic servant, and must give or receive a month's notice. Whether this applies also to under-gardeners in a bothy has not been decided, and your head gardener is therefore not in a position to substantiate his statement to you. In any case, if you have other employment waiting for you, he ought not to stand in your way, as doubtless he can soon find a substitute.

Melon Leaves Diseased: *J. B.* The trouble with your Melons is not caused by a fungous disease, but is apparently due to some cultural mistake, which you will be in the best position to determine.

Mildew on Vine Leaves: *Reader.* The fungus on the Vine leaves is the common grey-mould, Botrytis cinerea. All dead and decaying vegetable matter in or near the vine should be collected and burnt, as it provides a breeding ground for the fungus. Dust all the affected leaves with flowers of sulphur, and take care that ventilation is so arranged that cold draughts do not reach the foliage.

Myrobella Stocks Diseased: *C. W.* Examination revealed the presence of the fungus Fusarium on the roots of the stocks, but as the trees were dead there was no means of discovering whether the fungus was the cause of their death or appeared afterwards.

Name of Fruit: *F. S. H.* Annie Elizabeth.

Names of Plants: *F. F. B.* 1, Spiraea chamaedrifolia; 2, Cryptomeria japonica var. elegans; 3, Cytisus scoparius var. Andreanus; 4, Rhus vernicifera; 5, Acer pictum; 6, Genista hispanica (Spanish Gorse); 7, Populus canadensis; 8, Prunus japonica; 9, Prunus Padus (Bird Cherry); 10. Taxodium distichum (Deciduous Cypress); 11, Cytisus albus (White Spanish Broom); 12, Prunus Padus var. rotundifolia. — *L. H.* Polyporus squamosus.—*W. H.* Probably Tulip Catafalque. — *L. S. A.* 1, Poa pratensis (Meadow Grass); 2, Alopecurus pratensis (Fox-tail Grass); 3, Crepis taraxacifolia (Hawksbeard); 4, Cerastium vulgatum (Mouse-ear Chickweed); 5, Trifolium minus (Irish Shamrock).—*W. B.* Grevillea asplenifolia.—*L. G. P.* Clianthus puniceus.—*G. G. M.* Lonicera alpigena.—*A. V.* Probably Rhododendron intricatum.—*K. F. F* 1, Prunus Padus (Bird Cherry); 2, Clematis montana; 3, Lonicera involucrata; 4, Rhus typhina; the labels of 3 and 4 were stuck together; the plant in flower is the Lonicera —*F. M.* A form of Tulipa Gesneriana.

National Auricula Society: *C. L.* and *C. B. M.* Copies of the jubilee report will be supplied to non-members at 1s. each, and are obtainable from Mr. John Tonge, 22, Booth Street, Manchester.

Peach and Nectarine Leaves Blistered: *C. W.* Your Peach and Nectarine trees are suffering from an attack of the Peach-leaf Curl fungus (Exoascus deformans). Badly diseased leaves should be removed and burnt, and the trees encouraged to grow as freely as possible. Given warmer conditions, the new leaves will not be disfigured. Next season spray the trees toward the end of February with either Bordeaux or Burgundy mixture before the buds begin to swell.

Poison for Mice, Rabbits and Slugs: *Flowergrower.* You do well not to lay poison for mice and rabbits. Besides being illegal, one can never tell where vermin will carry it. Plants may be made distasteful to all these pests by spraying them with paraffin emulsion. This is made by boiling four ounces of soft soap in a gallon of water. When dissolved take the pot off the fire and gradually stir a gallon of paraffin into it. Churn the mixture forcibly with the syringe until the whole becomes like a creamy paint. To one part of this add twelve to fifteen parts of cold water, stir it well, and it will be ready for use. The remainder of the emulsion will keep in bottles indefinitely until required. See that no free paraffin comes to the top after twenty-four hours, and if so, add more soap. Do not use paraffin and water, because they will not mix, but do more harm than the vermin. Paraffin emulsion should not be used on Rose bushes.

Potatos Discoloured: *J. A. M.* No disease was apparent in the tubers forwarded. Somewhat similar discolouration is found occasionally late in the season, and is usually attributed to chemical changes in the tissues, due to over-maturity. How far this belief is warranted we are not sure, as the starch grains themselves are in no way discoloured, and badly discoloured sets when planted appear to produce healthy plants. In one of the tubers sent (the small one), these changes had developed further than in the others, but even so no mycelium was present. The trouble is quite distinct from "sprain."

Propagating Epiphytal Orchids: *C. L. M.* Epiphytal or tree Orchids may be propagated by division at almost any season, although it is better in many cases to abstain from removing parts in the height of the summer or the dead of winter. The spring-time is usually found to be the most satisfactory period. The pseudo-bulbous Cattleyas, Laelias, Oncidiums, Odontoglossums, and genera of similar growth should have the leading growth with two or three pseudo-bulbs detached at the rhizome with a sharp knife, and these pieces can immediately be placed in small pots or Orchid pans and attended to as growing plants. A section of the dwarf Epidendrums, also Bulbophyllums, etc., are of this class. Epidendrum radicans and some others of the genus which root along the stems are of the class referred to as tree-climbing, and their propagation is effected simply by the removal of the portions required and making them into separate plants. Vandas, Aërides, Angraecums, and other true epiphytes with distichous leaves often produce young growths from the base of the parent plant, and these, after root action has been sufficiently advanced, make good material for fresh plants. Thunias, many Dendrobiums, and Orchids of similar habit may be propagated either by division or by cutting sections of the mature pseudo-bulbs 3 or 4 inches in length and placing them, a number together, like cuttings, in suspended pans, when, in due time, the nodes will send out young growths and roots. Masdevallias and other leafy species with rudimentary stem-like bases may be propagated very freely by division at almost any season. Most Orchids are the better for propagation, and, if stock is not required, those which have grown into hard tufts should be broken up, even if the parts are again potted together. They then form new centres, whereas, if left in one large mass, the worn-out cèntre decays and imperils the whole specimen. The best time to propagate Orchids is when they are being re-potted.

Removing a Large Portion of a Vine: *F. A. S.* The part of the vine which you wish to remove entirely from one house, a second portion being grown in another distinct house, should be divested of about one-third of its shoots now, and the remainder removed in, say, a fortnight's time. Allow the shoots on the portion of the vine which you wish to retain in the other house to grow more freely to utilise as much of the sap as possible. If you only wish to grow Tomatos in the house from which the vine is to be cut out, remove all the vine shoots as they appear, and cut the rod clean out when it is dormant. If necessary to remove the rod now, suppress any shoots that may appear, cutting the rod off a week or ten days later. Little or no bleeding will take place if the shoots of the other portion of the vine are allowed to grow freely; to make doubly sure apply a hot iron to the cut surface until it is charred, and afterwards paint it with Stockholm tar or painter's knotting.

Rhododendron Failing: *M. M. B.* Your Rhododendron may have been dry at the roots, as that generally results in the tips of the leaves going brown; on the contrary, the soil may be exhausted and in bad condition generally. In such case the only remedy is to transfer the plant to fresh soil, either in a tub, or plant it out in a bed or border in a conservatory or greenhouse. When repotting it, some of the shoots should be cut back partially; this should result in fresh growths developing, especially if the plant is sprayed several times daily during bright weather. It may be that the plant, being very old, is past recovery.

Shot-hole Fungus on Peach Leaves: *S. B.* Your trees are affected with shot-hole fungus, Cercospora circumscissa. Spray the trees with lime sulphur, one part to 100 gallons of water.

Vine Foliage Dropping: *W. C.* Your Vine shoots and Grapes arrived in a shrivelled-up condition, which made examination difficult. Apparently the Grapes and shoots are suffering from a very bad attack of mildew, and, if the specimens sent are an average sample, nothing can save the crop this season. Prevention is often easy, but not a cure, as mildew spreads rapidly, especially in cold, damp weather. Last season it was very prevalent on account of the wet, sunless season. Dust the leaves and bunches with flowers of sulphur, and pay careful attention to watering and ventilation. Thoroughly cleanse the woodwork of the Vinery next winter with soft soap and sulphur dissolved in hot water, a good handful to each pail of water, and apply hot lime wash to the walls. Next season rub off the loose bark of the Vines after pruning them, and wash the rods thoroughly with Gishurst Compound. With careful management afterwards, your Vines should be free from mildew next season.

Wash for Gooseberry Bushes: *W. J. M.* The case of insects eating the flowers certainly seems to be unusual. We can only suggest some wash which, by its smell, would discourage the insects. Lime-sulphur at summer strength might answer. If not, a wash containing chlor-cresol could be tried with confidence. Messrs. Murphy and Son, Mortlake, London, S.W.14, supply a wash of this description.

MARKETS.

COVENT GARDEN, Tuesday, June 5, 1923.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz. ..	10 0-18 0
—elegans ..	10 0-12 0
Aralia Sieboldii ..	10 0-12 0
Araucarias ..	30 0-48 0
Asparagus plumosus ..	12 0-15 0
—Sprengeri ..	12 0-18 0
Aspidistra, green	48 0-72 0
Asplenium, per doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Azaleas, 48's per doz.	30 0-48 0
—60's	18 0-24 0
Boronias ..	21 0-27 0
Cacti, per tray, 12's, 15's ..	5 0- 7 0
Cinerarias 48's per doz. ..	10 0-15 0
Crotons, per doz.	30 0-42 0
Cyrtomium ..	10 0-15 0
Erica melanthera	
„ 48's per doz.	24 0-36 0
„ nivalis 48 „	24 0-30 0

	s. d. s. d.
Erica nivalis	
„ 60 „	10 0-15 0
„ Thumbs „	6 0- 8 0
Genistas 48's per doz. ..	15 0-18 0
Heliotropes ..	15 0-18 0
Hydrangeas white & pink, —48's, doz. ..	24 0-30 0
Marguerites, per doz.	18 0-24 0
Mignonette ..	10 0-15 0
Nephrolepis, in variety ..	12 0-18 0
—32's	24 0-36 0
Palms, Kentia ..	24 0-30 0
—60's	15 0-18 0
—Cocos ..	24 0-36 0
Pelargonium ..	18 0-24 0
Pteris, in variety	12 0-21 0
—large 60's ..	5 0- 6 0
—small	4 0- 4 6
—72's, per tray of 15's ..	3 6- 4 0
Spiraeas ..	15 0-18 0
Stocks, White & Coloured ..	12 0-15 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum, decorum, doz. bun.	12 0-15 0
—cuneatum, per doz. bun. ..	8 0-10 0
Anemone, St. Brigid, per doz.	6 0- 8 0
Asparagus, plumosus, per bun.	
long trails, 6's	4 0- 5 0
med. sprays ..	2 6- 3 6
short „ ..	1 0- 1 6
—Sprengeri, per bun.	
long sprays ..	2 6- 3 0
med. „ ..	1 3- 1 6
short „ ..	0 9- 1 0
Carnations, per doz. blooms ..	5 0- 7 0
Cornflowers, per doz. bun. ...	4 0- 5 0
Croton leaves, var., per bun.	2 6- 4 0
Gardenias, 12's, per box ..	4 0- 5 0
18's, per box ..	2 6- 3 0
Gladiolus, The Bride, per doz. bun.	30 0-36 0
—Blushing Bride, per doz. bun.	24 0-30 0
—Peach Blossom, per doz. bun.	30 0-36 0
—Ne Plus Ultra, per doz. bun.	30 0-36 0
Fern, French per doz. bun. ..	1 0- 1 3
Forget-me-not per doz. bun. ..	4 0- 6 0
Heather, white per doz. bun.	4 0-10 0
Iris, Spanish, white per doz. bun.	36 0-42 0
—Spanish, blue, per doz. bun.	24 0-36 0
—Spanish yellow, per doz. bun.	30 0-42 0
—Spanish mauve, per doz. bun.	24 0-30 0
Iceland Poppy, per doz bun. .	5 0- 6 0

	s. d. s. d
Ixia, per doz bun.	3 0- 4 0
Lilium speciosum	
long per doz.	5 6- 6 0
short „ „ ..	6 0- 8 0
Nigella, per doz. bun... ..	12 0-15 0
Lily of the Valley, per doz. bun.	30 0-48 0
Orchids, per doz.	
—Cattleyas ..	18 0-30 0
—Cypripediums	
Pæony, double white, 6's per doz. bun. ..	30 0-36 0
—double pink, 6's, per doz. bun.	18 0-24 0
—double red, 6's, per doz. bun.	18 0-24 0
Pelargonium, per doz. bunch, double scarlet	10 0-12 0
Pyrethrum, double white, per doz. bun.	10 0-18 0
—double pink, per doz. bun.	6 0- 8 0
—single pink, per doz. bun.	4 0- 6 0
—single red, per doz. bun. ..	4 0- 6 0
Richardias (Arums) per doz. ..	8 0-10 0
Roses, per doz. blooms—	
—Melody ..	3 0- 4 0
—Ophelia ..	4 0- 6 0
—Richmond ..	4 0- 6 0
Smilax, per doz. trails	6 0- 7 0
Stephanotis, per 72 pips ..	4 0- 4 6
Stock, per doz. bun. mauve ..	18 0-24 0
—white per doz. bun	12 0-24 0
Sweet Peas, per doz bun.. ..	12 0-24 0
Violas, per doz bun.	1 6- 2 0

Remarks.—There is almost a famine in cut blooms at the present time; prices for white blooms exceed those of last week. Carnations and white Roses are the scarcest subjects; 8s. per dozen blooms were realised for Carnations before the close of the market on Saturday last, and the outlook is not very favourable for the coming week-end. Double white Narcissus is practically finished, but small consignments of this flower are expected from Scotland during the next few days. Double white Pyrethrums should relieve the situation a little, but the supplies of these blooms are very small. Double white Stock is selling freely at abnormally high prices such as have never before been realised at this season. Only improved weather conditions will change the situation, and all florists are anxiously waiting for summer days. There are no new subjects to record this week. Consignments of cut blooms from all parts of the country are much below the average.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—Victorian, N. S. Wales, Tasmanian & W. Australian	
—Sturmer ..	13 0-14 0
—Monroe's Fav.	13 0-14 0
—Jonathan ..	13 0-15 0
—Cleopatra ..	13 0-15 0
New Zealand	
—Jonathan ..	14 0-15 0
—Rome Beauty	14 0-15 0
—London Pippin	14 0-15 0
Apricots, crate..	6 0- 9 0
½ sieve ..	7 0-12 0
Bananas, singles	16 6-27 0
—doubles ..	22 6-27 6
Cherries—	
Half-sieve ..	8 0-12 0
Boats ..	7 0-10 0
Box	1 6- 2 6
Figs special ..	12 0-20 0
best.. ..	6 0- 9 0
Gooseberries—	
—Non returnable Strikes ..	3 6- 4 6
—Kent, ½ sieves	6 0- 8 0

	s. d. s. d
Grapes—	
—Belgian ..	2 0- 2
—Hamburgh ..	2 0- 5
—English Muscat	4 0-12
Grape Fruit—	
—Jamaica ..	25 0 27
Lemons—	
—Messina boxes	8 0-10
„ cases	16 0-18
—Murcia ..	16 0-22
Melons, English and Guernsey, each	1 6- 4
Nuts—Brazils ..	45 0-47
Oranges—	
—Denia ..	18 0-26
—Murcia ..	18 0-30
—South African Naval ..	20 0-22
Peaches—	
—English, doz.. .	12 0-30
Pineapples, case	14 0-40
Strawberries spec.	8 0-12
„ best	4 0- 6

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, bundle	
—Special Devon	10 6-14 0
—Spec. Evesham	8 0-18 0
—Best „ ..	3 6- 6 0
Beans—	
—Guernsey, lb.	2 0- 2 3
—Madeira basket	4 0- 6 0
—Worthing ..	2 0- 2 6
Broad Beans, ..	– — – 4
Beets, cwt. ..	2 6- 4 0
Cabbage, dozen	1 6- 2 6
—New, dozen ..	8 0-10 0
Cauliflowers, doz.	4 0- 8 0
Cucumber, Flat	10 0-14 0
Green Artichokes, dozen	1 6- 2 6
Greens, bag ..	2 0- 3 0
Lettuce, dozen—	
—English ..	0 9- 1 3
Marrows, doz...	10 0-18 0
Mint, doz. ..	3 0- 6 0
Mushrooms, lb.	1 6 -2 6
Onions—	
—Egyptian ..	9 6-10 0

	s. d. s.
Onion.	
—English, cwt.	5 0- 6
Peas, lb. ..	
—Guernsey ..	2 0- 2
Potatos,	
—Canary Island case	10 0-12
—Spanish, cwt.	11 0-12
—Guernsey, new, lb.	15 0-18
—Jersey ..	15 0-18
—King Edward	£3 -£3
—Others ..	£2 5-£3
Radishes, doz...	1 0- 1
Rhubarb, Forced	2 0- 3
Spinach, bushel	3 0- 5
New Turnips, doz. bunches ..	10 0-12
Tomatos—	
—English ..	— —
—Pink and Pink and White ..	9 6- 9
—White	6 0- 7
—Blue	– — 7
—Guernsey ..	8 6- 9
—Canary Islands	8 0-10

Remarks.—General conditions of trade have been very brisk in spite of adverse weather conditions, and a considerable volume of produce is moving satisfactorily. Australian and New Zealand Apples are a firm trade, the condition of the fruit being first-rate. Choice English fruits are increasing almost daily in quantity, although warmer weather would be welcomed to influence the demand. Strawberries, Figs, Peaches, Nectarines and Melons are maintaining steady values. English Tomatos are coming in the market slowly, and no doubt a warm spell would have the effect of considerably expanding daily arrivals, and prices would go lower. The Cucumber trade has been moderately good, and the tendency is towards lower prices. Forced vegetables have been in keen demand, and Peas, Beans and Marrows have been realising firm prices. Asparagus is cheaper, and its value is likely to go lower still. New Potatos from all sources are abundant. Gooseberries have sold fairly well but at lower rates, the competition of Dutch berries bringing down prices. Apricots are very plentiful, and fair quantities of French Cherries are available. Green vegetables are plentiful and cheap, but Cauliflowers are scarce and dear.

GARDENING APPOINTMENTS.

Mr. Geo. Hawes, for the past eight years and nine months Gardener to Miss Feilden, High Wall, Headington Hill, Oxford, as Gardener to Mrs. Cowley, Mayside, Tubley, Abingon, Berkshire.

Mr. D. Crombie, for the past four and a half years Gardener to E. R. Moxley, Esq., and previously eighteen years Foreman to the Rt. Hon. G. W. Palmer, as Gardener to F. Rendle, Esq., The Grange, Ascot, Berkshire.

Mr. T. W. Fuller, for the past three years and three months General Foreman at South Pickenham Hall, Swaffham, Norfolk, as Gardener to W. P. Tyser, Esq., Dudbrook, Brentwood, Essex.

CATALOGUES RECEIVED.

M. Rowan & Co., 51-2, Capel Street, Dublin.—Bee Keepers' Supplies, Lawn Mowers, Wheel Hoes and Cultivators.

Wm. Cutbush & Son, Ltd., Barnet Nurseries, Barnet.—Bay trees; Hydrangeas; cut bushes; Polyantha Roses

Foreign.

Dimetz, Brocco and Guiheneuf, 129, Rue du Faubourg Saint-Denis, Paris.—Lilium candidum (wholesale

THE
Gardeners' Chronicle
No. 1903.—*SATURDAY, JUNE* 16, 1923.

CONTENTS.

berdeen's parks superintendent 330
ark cloth, African .. 340
racken and pigs .. 330
ulb garden, the—
  Nerine Bowdenii .. 335
abbage, the Skunk .. 338
otton growing, studentships in 330
itrus crops in Greece 330
dinburgh Botanic Garden, notes from .. 334
ly, St. Mark's .. 330
ruit garden, the market 338
alsworthy's, Mr. Frank, garden and flower pictures 329
Gardeners' Chronicle" seventy-five years ago 331
ardeners' wages .. 340
arden substitute for farmyard manure .. 339
ndoor plants—
  Richardia 337
  Thunbergia 338
rving, Mr. Walter .. 330
ew, presentation of a herbarium to .. 329
Moonock 340
Orchid hybrids, new .. 334
Painters, early Botanic 336
Plant collecting in the Auckland Islands .. 334
Plant notes—
  Osteomeles anthyllidifolia 335
Plants new or noteworthy—
  Pentactina rupicola 331
  Primula Delavayi .. 331
Propagation of "difficult" plants.. .. 333
Public parks and open spaces 334
Rock garden ? what is a 340
Sarawak, development of 330
Seeds, vitality of .. 330
Societies—
  Royal Horticultural 341
  Yorkshire Gala .. 342
Spraying, successful 330
Trees and shrubs—
  Prunus rufa 335
Week's work, the .. 332
Wheat 329

ILLUSTRATIONS.

abbage, Skunk, fruit of, 338 : section of the fruit showing embedded seeds 339
rving, Mr. Walter, portrait of 330
ilacs, Rabel's illustration of 336
ily, Red, Rabel's illustration of a 337
steomeles anthyllidifolia 335
entactina rupicola 331
rimula Delavayi 333

VERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 58.6°.

CTUAL TEMPERATURE :—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 13, 10 a.m.: Bar., 30.1; temp., 64°. Weather—Dull.

Wheat. A lecture delivered recently by Prof. Biffen before the Plough Club of the School f Rural Economy at Oxford, deserves a ore universal audience. Prof. Biffen, as ur readers know, has devoted some twenty ears of his life to the improvement of the Vheat plant, and his efforts, which happily re still in progress, have already met with ignal success. Work in plant breeding is of ecessity very slow, and full of disappointents, and it therefore is eloquent testiony to Prof. Biffen's genius that he has roduced varieties which are more adapted cultivation in certain parts of this country han are any other known varieties. No ne who is not able to formulate precisely e problem he sets out to solve is likely, xcept by happy accident, to find the soluion. The problem which Prof. Biffen set imself is to produce varieties of Wheat hich are more amenable to intensive culivation by farmers than are any of the xisting varieties. He recognised that, as udged by yield per acre, British Wheat rowing leads the world—Denmark alone seuring a higher average and that only on relatively small area. Therefore the ritish farmer is a good intensive cultivator nd is capable of producing yet heavier yields f suitable varieties can be provided for him o sow. But of what avail is it to grow a rolific variety if the miller and baker find t unsuitable for their requirements! Or of what use is it to aim at a yield of, say, forty bushels if the variety grown is one which goes down, that is, lodges in all but the most propitious seasons! Or why increase yield by intensive cultivation if the larger crop is liable to attack by rust and mildew! Thus the problem to be solved is one which involves the production of high yielding varieties of wheat, which when milled give a flour which the miller can sell to the baker and from which a loaf can be baked which the public will buy and enjoy. The variety must also be proof against yellow rust, a malady which if it attack Wheat may reduce the yield by so much as twenty per cent. It must also be resistant to mildew and it must be of a kind that will stand up and not, by going down when nearly ripe, put the farmer to endless trouble in the reaping and loss in the harvesting. Of our old varieties many are good yielders—Square Head Masters among the number—but they are weak, and not strong Wheats: that is, they yield a loaf which is more wizened and less portly than that given by the strong Wheats of other countries. A 2 lb. loaf made of English Wheat of these weak varieties is not much more than half the size of the two pound loaf made from strong varieties. It is, moreover, as the bakers say, "sad," more elastic, less open in texture, and to most palates less pleasing. Miller, baker and public agree that the loaf made from strong Wheat—or a blend—is better than that made from weak Wheat, and they back their opinion by a readiness to pay more for the former than for the latter, and even by a reluctance, in inland places, to purchase local grown Wheat. Recognising these facts, Prof. Biffen proceeded to combine by breeding the prolificness of high yielding English varieties with the strength of a Canadian Wheat. It was no easy task, for nearly all strong Wheats when grown in England lose their strong character. Fortunately, however, among strong Wheats one was found which has retained its strength even after growing for many years in this country. This variety, Red Fife, was used in the breeding experiments which resulted in combining in one variety high yield and strength. After the production of a variety with these characters, Prof. Biffen turned his attention to combining them with a power of standing up—that is, of refusing to lodge in the wet, stormy weather which not infrequently obtains before the crop is ripe for harvest. He had already concluded that lodging is generally due to the surface roots of the Wheat plant being too weak to anchor the plant so that it can ride securely through any gale. He observed that Wheats with stout straw—some of which Wheats he had obtained in the course of breeding experiments—had the power of standing up, and he was thus able to combine this character with the strength and prolificness of his new varieties. Susceptibility to yellow rust was also overcome by breeding. Some varieties, otherwise poor, were found to possess complete or all but complete resistance to yellow rust. They were induced by breeding to enter Professor Biffen's Mendelian syndicate—in other words, they were hybridised with varieties possessing other desirable characters, but susceptible to rust, with the result that the farmer will presently have at his disposal varieties not only possessed of these several virtues, but also able of being cultivated intensively. The national importance of the Wheat question was insisted by Prof. Biffen in his lecture. He pointed out that many great Wheat producing countries have already reached the limit of their production, and that therefore rising prices and increased consumption will, in a few years time, make it necessary for this country to produce much more of the Wheats which it requires than it does at present. This is an aspect of agricultural economics in which everyone cannot fail to be concerned, and thus the recondite researches of the laboratory are seen to have an interest for every person—no matter how urban his outlook —who inhabits Great Britain.

Presentation of a Herbarium to Kew.—The interesting collection of British plants belonging to the late Dr. George Lloyd, has been presented to the Royal Botanic Gardens, Kew, by Mrs. Lloyd, through the Bournemouth Natural History Society. Dr. Lloyd was born at Albrighton, Shropshire, in 1804, and although he graduated at Edinburgh in 1826, he did not practise medicine, but devoted his time to botany. Most of the plants were collected between 1825 and 1843. The herbarium numbers some two hundred and fifty sheets, which are for the most part in an excellent state of preservation. Amongst the more interesting species are Arthrolobium ebracteatum, Ononis reclinata, Sibbaldia procumbens, Eryngium campestre, Gentiana nivalis, Myosotis alpestris, Phyteuma spicatum, Salvia Marquandii and Eriophorum alpinum.

The Lake in St. James's Park.—Considerable progress has been made in the cementing of the base of the lake in St. James's Park. It will be remembered that during the war period the lake was drained and the site occupied with Government offices, which came to be known as the Lake Dwellings. After the removal of the buildings it was found that the bed of the lake no longer held water, consequently the area had to be drained and the base covered with ferro-concrete and cement. The whole of the area west of the suspension bridge appears to be finished and not much remains to be done at the eastern end, consequently there seems to be good ground for believing that the site will be filled with water before the end of the summer. Floral attractions in St. James's Park at present are large groups of Lupins, and in a few days there will also be effective groups of Foxgloves.

Mr. Frank Galsworthy's Garden and Flower Pictures.—Mr. Galsworthy's seventy odd pictures of gardens and flowers in water-colour made quite an attractive little show at the Walker Galleries, New Bond Street, from May 24 to June 6, and their brightness was all the more welcome during a period of cold, dull weather. Only twenty-two of the pictures represent garden scenes, the rest being of cut flowers in conjunction with pottery and the other small objects usually found in still life studies. As regards the gardens, these varied in attractiveness. No. 13, "A Vista at Hever," shows little but a grass path bordered by a thick, clipped Yew hedge, at the end of which a statue is placed in a stone niche. No. 9, "Manor House Forecourt in Lincolnshire," represents a pretty corner in a formal garden, with a riotous Clematis twining around the pillars of the wide doorway in the low wall, and Hollyhocks and Antirrhinums growing in unstudied grace at the foot of the wall. No. 18, appropriately named "Early June," shows a plantation of Azaleas and Rhododendrons, but the artist has just failed to make the most of the brilliant hues of these lovely flowers, though the deep shadows on the ground would suggest bright sunshine. No. 12, "The Closed Gates," represents a pair of wrought iron gates set in an iron railing, beyond which a view of enchanting country can be seen, whose charm is intensified by the fact that the portion of the scene inside the gates—part of a cultivated garden—is thrown into deep shadow by an overhanging tree, while the country beyond is in full sunshine. No. 17, "Rhododendrons and Irises," shows the Rhododendrons formed into a loose hedge, the Irises—purple and yellow—growing in masses in the foreground. The picture is pleasing, and the colours blend well, but here again the artist has failed to give the Rhododendrons the peculiarly brilliant tone which their position in full light should warrant. No. 8 represents a charming little corner in the old gardens at Hampton Court; a part of the wall with a pillared gateway, and in the foreground a bed of Azaleas set in the turf. "July in my Garden" (unnumbered) is a pleasant mêlée of garden flowers of the commoner kinds, set off by some smooth turf and a number of trees planted apparently at haphazard. No. 22, "The Loggia at Walhampton," is a neat bit of work, whose trimness is relieved by a wayward Rose or two of climbing varieties in the foreground. No. 25 is among the second series of drawings, and represents a glass vase of garden flowers which bloom in August—hence its name, "An August Medley." The predominating colours are red and yellow. No. 59, "Gillyflowers," shows a vase of neutral tint, in which are loosely arranged some variously coloured Pinks of the older border varieties. No. 63, "Some New Carnations," is well executed, and the colours carefully blended. A series of pictures, each bearing the name of a month, is intended to represent the flowers to be found in the garden at each period; the flowers are prettily posed, and "November" is especially pleasing, consisting chiefly of Chrysanthemums, mingled with the berries of various ornamental fruiting shrubs. No. 58, "Old Friends," is remarkable for its very beautiful setting. It represents red and yellow Tropaeolums loosely arranged in an earthenware bowl on a polished wood table. Close to the flowers, and partly behind them, is a brown earthenware pitcher, against which the colours of the flowers are thrown up in high relief; emphatically a picture one could "live with."

Citrus Crops in Greece.—The production of Citrus fruits in Greece has increased enormously since 1921, the amount last year showing an increase of 159 per cent. The number of Oranges harvested in 1922 was 152,000,000, compared with 53,000,000 in 1921, whilst Mandarins numbered 63,000,000 compared with 18,000,000 in 1921, and Lemons 49,000,000 compared with 31,000,000.

A New Climbing Rose.—Monsieur J. C. N. Forestier, conservator of the Paris Parks, writes as follows, from the Bois de Boulogne, Neuilly-sur-Seine, France, under date of May 25, 1923: "I read, at the foot of p. 289 of your issue of May 26, a description of a new climbing Rose, a hybrid of Rosa gigantea. I am of opinion that its name is neither Belle of Portugal nor Belle Portugaise, but Etoile de Portugal. If I am not mistaken, it was raised by Cayeux when he was head gardener at Lisbon. It is certainly an excellent climbing Rose, extremely vigorous, flowering in the south of France and in Spain, from April onwards. The foliage is hardy and very abundant, and the flower is of delicate form, like that of Zéphirine Drouhin, but larger, and the colour is pink, tinged with yellow. It is very agreeably scented. The blooms are produced in great numbers, but I fancy that this Rose, from a climatic point of view, is as exacting as Rosa Banksia. I planted it at the foot of the trelliswork in the gardens of Montjuich, Barcelona, three years ago, and it already covers the paling."

Development of Sarawak.—The interesting province of Sarawak, on the north-west coast of Borneo, has made rapid increase in its trade since 1842—the date when Sir James Brooke, the first Rajah, was proclaimed in Brunei. According to Mr. E. Parnell, in a paper read before the Society of Arts, the value of exports in 1842 was $60,000, whilst in 1920 the exports were valued at $18,067,121. The imports also show a phenomenal increase. In 1854, the first year for which figures are available, imports were of the value of $319,639, whilst in 1920 their value was $14,680,520. Amongst vegetable economic products are Rice, Pepper, Camphor, Damar, Ratans, and Sago. The Pepper industry has suffered a decline since 1905, when the value of Pepper exported was $2,638,414. The disease known as "black berries" is mainly responsible for the decline of Pepper exports, and although the disease was regarded as incurable and nothing was done to stop its spread, the Government Mycologist, who has inspected the gardens, reports that it is curable at a reasonable cost, and steps are being taken to carry out his recommendations. When the rubber boom came, hundreds of Pepper plantations were interplanted with rubber trees to the ruin of the existing Pepper vines, and to the detriment of the growth of the rubber trees.

Mr. Walter Irving.—Most of our readers who are keenly interested in the cultivation of herbaceous and alpine plants are aware that Mr. Walter Irving is an authority on these subjects and that he has for many years had charge of the special department concerned with these plants at Kew. Mr. Irving commenced his gardening career at Easton Park, Wickham Market, Suffolk, under his father, who was gardener to the Duke of Hamilton. After leaving Easton Park, he entered service at Sefton Park, Slough, and subsequently was employed at the Grange Gardens, Old Windsor, the home of Sir Charles Murray. Later on, after spending a period of twelve months at Messrs. Lee's Nursery, at Hammersmith, Mr. Irving went to Belvoir Castle, where he worked for three years under the late Mr. Wm. Ingram, and laid the solid foundation of his present wide knowledge of hardy plants. From Belvoir Castle he went to Kew, in October, 1890, and in March, 1893, he was appointed to succeed the late Mr. Daniel Dewar, as chief of the herbaceous department in the Royal Botanic Gardens, while in June, 1922, he was appointed an Assistant Curator. Mr. Irving has devoted a great deal of attention to British plants, of which he has an extensive and peculiar knowledge that has proved immensely helpful to very many young men, who have been employed at Kew, and who have taken an interest in our native flora. For a long period of years Mr. Irving has been a frequent contributor to our pages, and he has written a book on Saxifrages, while *Everyman's Book of the Greenhouse* is also from his pen. At this season of the year the rock garden is one of the great attractions at Kew, and that it is so is due to the assiduous attention and loving care Mr. Irving has bestowed upon it for so many years. Those who are acquainted with Mr. Irving are impressed with his modest, retiring disposition, and his willingness to place his extensive knowledge at the service of others. These qualities have endeared him to a host of friends far outside those who have been associated with him at Kew.

MR. WALTER IRVING.

Studentships in Cotton Growing.—A numbe of research studentships have been offered University graduates by the Empire Cott Growing Association, and will be awarded July next. These studentships are to th value of £250, plus certain extra allowance and are intended to provide opportunities f training in scientific research bearing on subjec that may be of service in agricultural demo stration or in inspecting Cotton-growi countries. The students will be expected spend a period of their studentship at the We Indian Agricultural College, Trinidad, or som other institution abroad selected by the corpor tion. Particulars may be obtained from th Secretary, Empire Cotton Growing Corporatio Millbank House, Millbank, S.W.1.

St. Mark's Fly.—The large black flies—usual called St. Mark's flies—which every May swar in orchards and elsewhere, do no damage the fruit trees. The fly itself is harmles In its young, or "grub" stage, it is sometim credited with causing damage to the roots grass, herbaceous plants, etc., but even the it is a comparatively minor pest. Any refe ence to damage to fruit trees by large blac flies may be entirely discredited.

Vitality of Seeds.—According to *Nature*, M J. Houdas, in a paper read before the Academy Sciences, Paris, stated that certain seeds whic soon lose their germinating power after exposu to air will, if kept in sealed tubes in an ine gas, such as hydrogen or carbon dioxide, reta their vitality for a number of years. In th case of Gerbera Jamesonii, the seeds lose the germinating power after exposure to air for few weeks, yet when placed in sealed tubes co taining an inert gas, the vitality of the see remained unchanged after eleven years.

Bracken and Pigs.—The difficulty of eradica ing Bracken from land needed for cultivatio is ever present in certain districts, but, accor ing to a writer in the May issue of the *Esta Magazine*, those who have Bracken land nee never regard it as useless. If they will spen a few pounds on fencing and will turn a fe pigs into the enclosures thus made, they wi quickly find that such land can be turned good account in a remarkably short space time and at very little cost. If it is desired get rid of the Bracken completely, the pigs wi do it, if left long enough on the land, for the will in time completely rout out the roots whic by the way, have a fair feeding value. Bracke infested land can in this way be quickly turne into sound pasture. After the pigs have don with it for the time being, the ground shou be harrowed level, and if grass shows no sig of coming, seed may be sown. It is a remar able fact, however, that the presence of pigs any land seems to encourage the natural grow of Clover. Valuable pasture is therefore quick created.

Aberdeen's Parks Superintendent.—Muc gratification is being expressed in civic an horticultural circles in and around Aberdee that Mr. William B. Clark, the esteemed supe intendent of the Aberdeen Parks and Links, not to vacate his post yet awhile. Mr. Clar was on the short list for the superintendentsh of Edinburgh parks, but has withdrawn h application. A great favourite with all co cerned in the administration of the parks, th powers that be have determined that an increa in salary be granted to Mr. Clark. This ha been unanimously confirmed by the Tow Council.

Successful Spraying.—Messrs. Ernest Ben Ltd., are shortly publishing an authoritati book by Mr. P. J. Fryer, F.S.C., F.I.C.E., und the explanatory title of *Successful Sprayin* Mr. Fryer brings a wide practical experience bear on this important problem, which he w treat as a business proposition to be faced b every practical fruit grower and by all tho who raise crops liable to be attacked by insec or fungi. The present position of the agric tural and horticultural industries makes th application of modern scientific methods mor than ever essential, and we look forward with pleasurable anticipation to a new work from the author of *Insect Pests and Fungus Diseases of Fruit and Hops.*

Trial of Schizanthuses and Annual Larkspurs at Wisley.—The Royal Horticultural Society will carry out a trial of Schizanthuses and Annual Larkspurs for flowering under glass during the coming winter and spring. A packet of each variety for trial should be sent to The Director, R.H.S. Gardens, Wisley, Ripley, Surrey (from whom the necessary entry forms may be obtained), so as to reach him on or before June 30, 1923.

Appointments for the Ensuing Week.—Tuesday, June 19: Kent County Agricultural Society's show at Gravesend (three days); Winchester Horticultural Society's meeting. Wednesday, June 20: Croydon Horticultural Society's exhibition. Thursday, June 21: Manchester and North of England Orchid Society's annual meeting. Saturday, June 23: Southgate Rose Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Curatorship of Chelsea Botanic Gardens.* We have to announce the resignation of the Curatorship of the Botanic Gardens, Chelsea, by Mr. Fortune, engaged by the East India Company to proceed to China, for the purpose of procuring Tea plants and seeds for their Tea plantations in the Himalayas; and the appointment of Mr. Thomas Moore in his room, upon the recommendation of Dr. Lindley. We have also to add that Mr. Hartweg has returned to England with a collection of seeds for the Horticultural Society, after an absence of two years and eight months, the greater part of which time was passed in California. *Gard. Chron., June* 10, 1848.

Publications Received.—Silver Leaf Disease of Fruit trees and its occurrence in South Africa. By V. A. Putterill. *Science Bulletin* No. 27. Department of Agriculture, Union of South Africa. Government Printing Office, Pretoria. Price 3d.—*Bulletin of Peony News.* Nos. 18 and 19. American Peony Society, 200, West 58th Street, Minneapolis, Minn.—*Income Tax and Super-Tax*, 1842-1924. Oliver and Boyd, Tweeddale Court, Edinburgh. Price 1s. net.—*Fruit Cultivation in Trinidad and Tobago.* Issued by the Agricultural Society of Trinidad. Price 1s.—*Agricultural Rates Bill*, 1923: *Memorandum on the Financial Resolution.* H.M. Stationery Office, Imperial House, Kingsway, W.C.2. Price 3d. net.

PLANTS NEW OR NOTEWORTHY.

PENTACTINA RUPICOLA.[*]

THE rich and more accessible lands of Japan and China have contributed so much material to western gardens that the very existence of other countries in the Orient has almost been lost sight of. Korea is a country of considerable size, and its flora contains many ornamental species, yet singularly few Korean plants are known in the gardens of Europe. Until quite recently comparatively little was known concerning the flora of Korea, but since the annexation of the country by Japan, its vegetation, as well as other resources, have been fully inquired into. The fact that Viburnum Carlesii, Rhododendron Schlippenbachii, Cornus officinalis and Lilium cernum, are natives of Korea, should be a sufficient inducement to lovers of hardy plants for further inquiries into the floral wealth of the Korean peninsula. It was my good fortune to spend the greater part of the years of 1917 and 1918 travelling through Korea, which is different in many respects from either China or Japan, its immediate neighbours. The climate is continental, and except in the extreme south, the winters are severe. All the plants from Korea so far introduced in the Arnold Arboretum have weathered the vagaries and severities of New England winters, and our only regret is that we have not more of them.

The beauty spot of Korea is the Diamond Mountains, for centuries a Buddhist sanctuary and a place where the natural vegetation has not been interfered with or destroyed, which has been the case over the greater part of the country. It is a collection of peaks, the highest of which exceeds 6,000 feet, intersected by ravines and glens down which streams of the purest water flow. In all the East I know of no place more lovely and interesting than the Diamond Mountains. In the glens and ravines, on the cliffs and peaks grow a great variety of plants, and several like the subject of this note are not known to grow elsewhere.

The new and monotypic genus, Pentactina, grows on the steep cliffs near the Makaean Monastery. Pentactina rupicola (Fig. 158) is a tufted plant with slender, arching, and pendent stems, pink when young, changing to red-brown. The leaves are alternate, tufted at the base of the shoot, sessile or with a short petiole, without stipules, light green above, glaucous below, oblanceolate in shape, 1 inch to 2½ inches long, ½ to 1 inch wide, with broad-cuneate base and are deeply toothed above the middle. The flowers are borne in terminal, pyramidal panicles, each from 3 inches to 4 inches long. The individual flower is small and has a pale-coloured calyx with reflexed lobes; spreading, narrow, strap-shaped petals; about 20 stamens and 5 rose-coloured ovaries. The fruit is dry and surrounded by the persistent stamens which are reflexed. The blossoms are densely crowded on the rhachis; in the autumn the leaves change to a bright yellow. The winter-buds are woolly and the bark conspicuously red-brown. The genus is closely related to Spiraea, from which it is distinguished by its strap-shape petals, and by its 2-ovuled follicle dehiscent along both sutures.

This new plant flowers during the latter part of June and early July, and is both a pleasing and useful addition to the rockery. It was first discovered by T. Uchiyama in 1902, but was not named until January, 1917. In the late summer of that year I collected seeds and plants and succeeded in introducing it into the Arnold Arboretum, where in a rockery it has grown well and flowered freely since 1920. It is a dainty little shrublet, but more for the connoisseur than for gardens in general. *E. H. Wilson, Arnold Arboretum.*

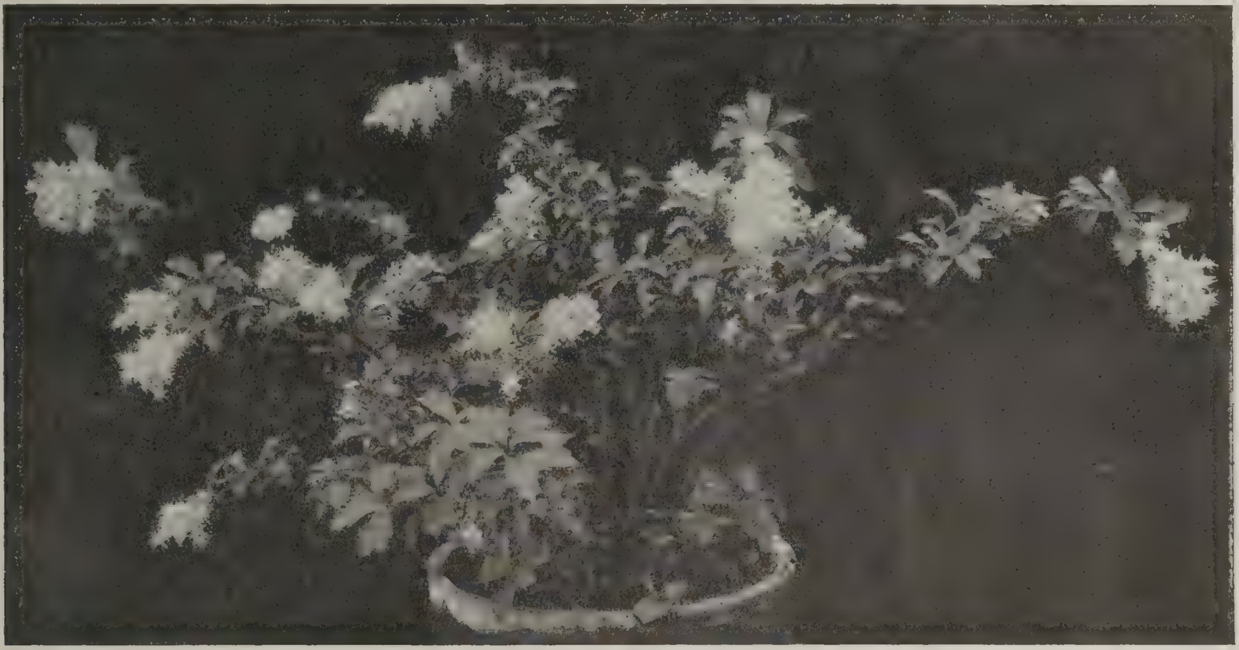

FIG. 158.—PENTACTINA RUPICOLA.

PRIMULA DELAVAYI.

THE photograph of Primula Delavayi reproduced on p. 333 (Fig. 159) shows a young plant of the true species, about natural size, in flower during April, and growing outside in the garden here. It was raised from seed—"Farrer No. 1053"—sown in 1920. This Primula seems to be of rather slow growth, and has not flowered before. The solitary flower is large, and carried on a stalk 2½ inches high; it measures an inch across the petals, which are six in number, fringed, and of a clear violet purple; the trumpet is 1⅝ inch in length, dark violet-purple outside, and covered with minute crimson hairs which give a reddish-purple tone towards the petals; inside it is green, with brown streaks at the base. The calyx is pale green with brown stripes. The leaves are rounded, and covered with crimson hairs, as also are the stalks of both leaf and flower; the hairs on the lower part of the stalks become green, but retain their bright colour half-way up and at the top.

It would be interesting to know if this Primula has flowered elsewhere since its introduction. *Kenneth McDouall, Logan, Port Logan, Scotland.*

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[*] Nakai in *Tokyo Bot. Mag.* XXXI. 17 (1917).

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cool Dendrobiums.—Such species as D. Kingianum, and its variety, album; D. speciosum, and its variety Hillii, D. teretifolium, D. glomeratum, D. japonicum, D. Victoria-Reginae, and several others thrive in the cool house, especially at the warmer end. Any plants of those mentioned that are starting to grow may have fresh rooting material afforded them if they require it. A similar compost to that advised for Dendrobiums will suit their requirements. The plants may be grown in shallow pans or baskets, suspended in a light position, where the syringe can be used freely amongst their foliage during hot weather, as they delight in plenty of moisture whilst making their growth. D. teretifolium is best accommodated on a teak wood raft, with a little of the compost packed between the bars and under the base of the plant, the raft being suspended in such a manner that the foliage droops naturally. These terete-leaved Orchids are capable of withstanding a greater amount of sunlight than the ordinary leaved varieties. D. Victoria-Reginae, the Blue Dendrobium, does better in a shady position, and should be grown in a shallow teak wood basket, in a compost in which living Sphagnum moss predominates. These cool Dendrobiums require, when growing freely, a liberal supply of water at the roots; but should be kept on the dry side after their growths are completed. The young growths of the deciduous and semi-deciduous Dendrobiums should, as they develop, be looped up to the wire or to a stake; as if they are allowed to hang over the sides of the receptacles in which they are growing they are easily broken or damaged; moreover, air and light circulate more freely amongst them when the shoots are kept apart.

Maxillaria.—The genus Maxillaria comprises both large and small flowered species. Among the former is M. Sanderiana, which produces its flowers in a downward direction, hence the necessity of growing it in a teak-wood basket. In the latter section are M. Meleagris, M. sanguinea, M. tenuifolia, and others whose pseudo-bulbs are produced at intervals on ascending rhizomes. M. grandiflora and M. venusta, are also showy plants which carry good foliage, and well flowered plants of these Orchids are always admired. The compost usually employed for Cattleyas may be used, and repotting done soon after growth begins. Most of the Maxillarias will thrive in the Intermediate or Cattleya house, and they should be kept more or less moist throughout the year, as if allowed to become dry there is a danger of their evergreen leaves becoming marked at the tips. Shade the plants from strong sunlight, and allow them plenty of fresh air whenever the weather is suitable. These curious and interesting Orchids are much sought after at the present time, not so much for their beauty, but more as a contrast to the large, showy flowered species.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Fruits Dropping.—Fruits of certain Plums are either swelling irregularly or dropping freely, and the promise of a heavy crop is vanishing. Apart from cold and sunless weather, dropping of the fruits is very often caused through dryness at the root. It is very necessary to see that trees of all kinds are not suffering from want of moisture during the critical period after the fruits have set. It often happens that just at this time, cold, drying winds prevail. When these cease, spraying the trees with soft water will favour a quicker swelling of the fruits in warmer weather.

Small Fruits.—Currants and Gooseberries promise to be good crops, and are not at the moment affected very much by insect or fungous pests. Gooseberry mildew may be expected; spraying with sulphide of potassium (1 oz. to 3 gallons of water) will destroy the spores of the fungus. The practice of tipping shoots that are affected by American mildew is usually recommended to be done in August, but in the case of slightly affected bushes it is advisable not to rely too much on spraying, but to remove and burn the shoots at once. Badly affected bushes should have dry litter put in them and be burnt where they stand. It is probably a disease which will recur in cycles, as it seemed on the wane during the past few years. Strawberry plants will need copious supplies of water to enable them to swell their fruits. Although many of the early flowers were spoiled by frost, the berries that set later should be very fine if we have sunshine to develop the flavour.

Silver Leaf.—This disease still causes considerable losses to fruit growers. Legislation is being adopted to enforce its eradication, as in the case of American Gooseberry Mildew. In many parts of the country large plantations of one of the host plants—the Portugal Laurel—are allowed to carry infection to adjacent fruit plantations. Fruit trees showing unmistakable signs of the disease should have the affected shoots removed before the fall of the leaves. Shoots suffering from malnutrition may, however, be mistaken for the disease, unless signs of the disease were evident the previous season. Careful pruning and stopping or dressing the larger wounds or cuts will considerably lessen the chances of an attack of Silver Leaf.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Eupatoriums.—The Eupatoriums are very useful for autumn and winter flowering, and should now be propagated by means of cuttings, which are easily rooted in a close case, with slight bottom-heat. E. Weinmannianum (syn. odoratum) flowers during the autumn, and plants propagated early in the year make useful specimens for the conservatory. If propagated at this season they make good plants for next year. This is a shrubby species, which, if grown on from year to year, will make large specimens. These should be pruned hard back early in the year and during the summer months stood out-of-doors. E. Raffillii and E. macrophyllum are both useful for winter flowering, their large heads of bluish purple flowers being very showy, and long-lasting. In their first season they make good plants for furnishing the stages; while fine large specimens for standing in the conservatory beds may be obtained by growing them on a second year. E. ianthinum is a smaller and slower-growing plant, and is at its best during its second year. E. grandiflorum, E. petiolare, E. riparium and E. trapezoideum are all white-flowered species, useful for furnishing the conservatory during winter or early spring. E. petiolare is the best and has the additional merit of being sweetly scented; if propagated now this will soon make fine large specimens for standing in the beds, while if propagation is delayed until August useful plants for the stages may be obtained. They are all easily increased by means of cuttings, which root readily in a close case in a cool house.

Scutellaria costaricana.—This plant is now very showy in the greenhouse, and is deserving of more general cultivation, as it is easily propagated at any time by means of cuttings, which root readily in a warm case. At one time this plant was given stove treatment, but it succeeds quite well in an intermediate house, and when in flower is best removed to the greenhouse. Other good species which succeed under the same treatment as advised for S. costaricana are S. coccinea and S. violacea.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Es
Carlton Park, Market Harborough, Leicestershire.

Coleworts.—These greens constitute a mos
useful catch crop, often coming in useful jus
when the autumn Cauliflowers are finishe
Seed should be sown now in an open positio
and netted against birds. Sow thinly. Th
young plants may be drawn from the bed an
planted to follow early crops of Peas or Potato
They are very hardy; the two best sorts ar
Hardy Green and Rosette.

Cabbage Christmas Drumhead.—Sow a pinc
of seed of this most useful Cabbage at the sam
time as the Coleworts, and plant the seedling
on good ground. This Cabbage grows to a goo
size and is hardy; the name indicates its tim
of maturing and shape.

Mulching and Watering.—Where material ca
be had, it is wise to mulch crops, as it not onl
saves much labour in watering, but adds great
to the yield, especially of Peas and Beans. Lon
stable litter is the best material to use, as
keeps the ground cool and allows the air to reac
the roots. Failing this, half-rotted manure
leaves will do, but anything of a close natu
should be avoided. If watering is necessary,
should be done copiously. One good soaking
worth more than half a dozen driblets. Ove
head sprayings in the late afternoons are ve
beneficial to most crops when the weather
hot.

Turnips.—Continue to sow batches of Turni
about once a fortnight, small sowings bei
better than one or two large ones. They may
grown between the rows of Peas. Mulch th
soil with short grass from the lawn mowing
and thin the seedlings when they are lar
enough to handle. Dust the soil with wo
ash during showery weather; failing rain, dam
the seedlings with water during the late afte
noon, before applying the ash.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Es
Woolverstone Park Gardens, Ipswich.

Early Peaches and Nectarines.—Immediatel
the fruits are gathered from the earliest tre
of Peaches and Nectarines it is a good pla
to cut out all exhausted and superfluous growth
and, practically speaking, prune the trees. Whe
this work is carried out with the trees in fu
foliage it can readily be seen which growths nee
to be removed to allow of the proper develop
ment of those intended for furnishing ne
season's crop. After pruning the trees, th
young growths should be tied down to enab
them to receive the full benefit of light an
air. By removing superfluous growths it
possible to use the syringe with good effe
thoroughly washing every portion of the foliag
It is most essential that the trees should
thoroughly cleansed of all insect pests at th
earliest opportunity, using a suitable insect
cide up to its full limit of strength. Bad infesta
tions of red spider may effectually be check
by vaporising with sulphur—Campbell's Pate
Sulphur Vaporiser being an excellent apparatu
for the purpose. The borders should be examine
and, unless they are found to be thorough
moist, well watered, applying at the same tim
liquid manure, guano water, or a suitable kin
of artificial manure. If the trees have receive
plenty of air during the time the fruits wer
ripening the ventilators may be left fully ope
both by day and night. Thoroughly syringe th
trees late in the afternoon, as a moist atmo
phere during the night is most beneficial
them, provided there is a full current of a
passing through the house.

Orchard House.—Thinning the fruits of Pea
Apples and Plums on trees which flowered free
and set heavy crops of fruit should receiv
prompt attention. Timely removal of supe
fluous fruits reduces the heavy strain on th
trees and materially accelerates the swelling
those fruits intended to form the crop. Wit
the exception of extension growths, pinching o

the points is best done at the earliest opportunity, when the young shoots have made five or six leaves; if allowed to unduly extend, there will be a certain amount of check to the tree. Disbudding will be necessary where too many young growths are clustered together, because unless light and air reach the young foliage there will be a poor prospect of flower buds next season. Insect pests should be kept under, either by vaporising or spraying with a suitable insecticide. Caterpillars must be removed by hand picking. If the water supply permits the use of a hosepipe, give the trees a thorough washing during the afternoon whenever the weather is favourable; a cool, damp atmosphere during the night is most congenial to the trees and swelling fruits. The admission of air must be guided by external conditions; ventilate freely on mild, sunny days, leaving the top ventilators open a little during the night.

THE FLOWER GARDEN.

By G. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Fragrant Foliaged Plants.—A grouping of fragrant-leaved plants is appreciated in most gardens, and they should be planted at a corner or angle convenient for passers-by to gather a sprig or press the leaves. A choice may be made from the following plants: Lemon-scented Verbena, Sweet Gale, Bee Balm, Myrtle, and Sweet-scented Geranium. While the last would only be hardy enough to be employed in summer, the other subjects could be considered more permanent, giving protection in severe winters to the Myrtle and Verbena.

Flower-Boxes.—Although flower-boxes are much more extensively employed in towns than in the country, these receptacles are nevertheless often wanted in country gardens to add brightness to terrace steps, balconies, or an odd window-sill. Plants best suited for this purpose are, as a rule, those which will hang down, as, for example, the Verbena or Ivy-leafed Pelargonium, but when the effect has to be considered from a distance, erect subjects will be needed, but the two plants already mentioned are equally good for this use if trained upright. Many other plants are suitable, but whatever are employed they should be planted in fibrous loam mixed with decayed manure to help sustain their vigour during hot weather. The tendency to use several kinds of plants in one box should be avoided.

THE PROPAGATION OF "DIFFICULT" PLANTS.

(*Continued from p.* 318.)

Mutisia decurrens.

The following is an extract from *Notes from the Royal Botanic Garden, Edinburgh*, Vol. VIII., No. XXXVII., pp. 137-138:—

The usual practice is to take as cuttings young shoots as they appear above the ground, and with them a piece of stolon is cut. In many cases such shoots may be obtained with roots already attached. This, however, is a crude method, and one which may result in damage to the parent plant. These shoots are those which produce the flowers. Every shoot of the kind that is removed means loss of so much flower. It is therefore essential, to ensure a good supply of bloom, that these shoots be allowed to remain on the parent plant. It has only to be known that portions taken from any part of the plant will give successful cuttings to put out of court this old wasteful method.

After the flowering season is over—that is to say, after the end of August or the beginning of September—it may be found advisable to thin out some of the old, flowering stems that have grown into a tangled mass. From these thinnings a supply of material suitable for cuttings may be obtained. Perhaps the most successful method of striking these is as follows:—

Select a frame with a shady exposure, and in it place one foot of drainage. Over this place some rough material, such as leaves, to prevent the drainage from becoming choked up, and finally a layer of pure sand, say about 8 inches deep.

In preparing the cuttings it is not necessary that they should be cut beneath a node, but anywhere that is most convenient. A suitable length for cuttings is from 6 to 8 inches.

After the cuttings are inserted, a steady temperature of about 58° F. must be maintained. Water of the same temperature as that in the propagating frame should be given —using a fine rose—in liberal quantities, at least once a day, or more frequently in bright weather. On warm, sunny days, or during drying winds, it will be found beneficial to give water every hour from 7 a.m. to 5 p.m.

The summit portion of a shoot roots more readily than does the basal portion, the reason being that the growing points have not yet become so woody and are thus in a better state for producing roots. If the older portions, however, are used, and the water supply kept up, they will root, although they may be a fortnight or three weeks later in doing so.

FIG.—159.—PRIMULA DELAVAYI (SEE P. 331).

It is not advisable to leave the cuttings long in the sand after roots have commenced to form, but, as soon as these are 2 to 3 inches long, the plants should be potted up. A suitable compost for potting consists of three parts loam and one part crock dust.

After potting, which must not be done too firmly, the plants should be placed back into the frame in which they were struck and receive a thorough watering. Water must then be withheld from the roots until the compost in the pots becomes somewhat dry, but, in order to reduce transpiration and prevent flagging, the foliage should be frequently and lightly sprayed.

After an interval of about a week from the time of potting, the roots of many of the cuttings will appear at the sides of the pots. These plants can then be removed safely to a cool house, there to remain until they are required for planting in border or greenhouse

Azara microphylla.

Table showing results from six cuttings inserted each month in a cool frame:—

January	All dead	(May)	
February	,,	(July)	
March	,,	(June)	
April	,,	(June)	
May	,,	(Aug.)	
June	,,	(July)	
July	,,	(Aug.)	
		(May following year)	
August	,,	(July following year)	
September	1 rooted 4 ,,	(Dec.) (May following year)	rest died
October	2 ,,	(Aug. following year)	rest died
November	4 ,,	(July following year	rest died
December	1 ,,	(Aug. following year)	rest died

Azara microphylla may be easily rooted if placed in an intermediate propagating frame where love Begonias are rooted.

Desfontainea spinosa.

Table showing results from six cuttings inserted each month in a cool frame:

January	All died		
February	,,		
March	,,		
April	1 rooted	(July)	rest died
May	All died		
June	,,		
July	1 rooted 4 ,,	(August) (Oct.)	1 died
August	1 ,, 3 ,,	(Oct.) (Dec.)	rest died
September	5 ,,	(May next year)	1 died
October	3 ,,	(July next year)	rest died
November	3 ,,	(July next year)	rest died
December	1 ,,	(Aug. next year)	rest died

Berberis vulgaris.

Table showing the results from six cuttings inserted each month:—

January	All died		
February	1 rooted	(July)	rest died
March	All died		
April	1 rooted 1 ,,	(August) (Sept.)	rest died
May	All died		
June	All died		
July	3 rooted	(Dec.)	rest died
August	3 ,,	(Oct.)	rest died
September	2 ,,	(May following year)	rest died
October	6 ,,	(April following year)	
November	6 ,,	(July following year)	
December	3 ,,	(August following year)	

Although the above shows the results of propagation from cuttings, the best way to increase stock commercially is to raise plants from seed. Nevertheless, the table shows that October and November are the best months in which to insert cuttings. *L. B. Stewart, Royal Botanic Garden, Edinburgh.*

NOTES FROM EDINBURGH BOTANIC GARDEN.

SEVERAL groups of Meconopsis are flowering in the rock garden at Edinburgh. M. integrifolia, a forest of stems, with numerous sulphur-yellow flowers, is particularly effective. The violet-coloured petals of M. simplicifolia are like silk, and contrast charmingly with the bunch of yellow stamens; M. grandis, M. rudis, and M. Prattii, are also flowering freely. The Celmisias are perennial herbs not generally cultivated. The flowers' heads are from 1 in. to 3 in. in diameter, the florets glistening white, disk yellow, foliage leathery in texture, and covered with a silvery tomentum. C. petiolata, C. viscosa, C. verbascifolia, C. Munroi and C. coriacea are in bloom.

Haberlea rhodopensis, a tufted Gesneraceous plant, is bearing bluish-lilac flowers resembling a miniature Gloxinia. Sisyrinchium filifolium—a native of the Falkland Islands—figured and described in *Gard. Chron.*, March 10, Fig. 61, is flowering. Dwarf alpine plants flowering include Dodecatheon pauciflorum, D. frigidum (?), D Lemoinei excelsum, Saxifraga Wenlock Beauty, S. pedatifida, S. Lindsayana, and S. Wallacei, Arenaria montana, A. balearica, and A. populosa (?). Drifts of the white-flowered Iberis sempervirens, and Leiophyllum buxifolium enhance the vivid colouring of Aubiretia deltoidea J. S. Baker, A. d. Aubrey Pritchard and A. d. Dr. Mules improved.

There are many shrubs flowering, and of these the most noticeable are Vibernum Davidii. Potentilla fruticosa alba, Erica australis rosea, Pentstemon Bridgesii, P. Menziesii Scouleri, Andromeda polifolia angustifolia, Veronica Hulkeana, V. Fairfieldii, and Cytisus kewense, the last foaming over a bluff at the entrance to the rock garden.

Primulas and Rhododendrons are features of the garden, and are grown in combination. Primulas flowering profusely in the Rhododendron garden include Primula chrysopa, P. hapala, P. Veitchii, P. septemloba, P. lichiangensis, P. capitata, P. conica, P. erythrocarpa, P. muscarioides alba, P. m. tsarongensis, P. firmipes, P. japonica and P. involucrata. In the borders adjacent to the greenhouses Paeonia Delavayi, Incarvillea brevipes, and Omphalodes Luciliae are flowering. Here also is Lathyrus undulatus, a plant of local interest, from the shores of the Dardanelles. Two formal beds on the terrace are planted with Phlox subulata, G. F. Wilson and P. s. violacea; the densely tufted plants are covered with blossom.

Lathraea Clandestina, a showy parasite, with violet-purple flowers, is growing on the roots of Populus canescens and Salix alba; it flowers over a long period.

On the indoor rockery are choice rock plants and shrubs which do not thrive in the open. Interesting kinds noted flowering were Olearia nitida, O. myrsinoides, Hibbertia Readii, Linum monogynum, L. tauricum, Fabiana imbricata, Veronica Lavaudiana, Prostanthera rotundifolia, Omphalodes cornifolia, Wahlenbergia serpyllifolia and Tetratheca pilosa. The last-named is a soft foliaged, Heath-like plant, with purple flowers, which only open on fine days, closing again at evening or when rain is imminent.

On the wall in the corridor Viburnum macrocephalum is conspicuous with large, globose heads of snow-white flowers. Datura sanguinea is a showy wall plant, the long orange-coloured flowers being seen to advantage as they hang from the branches.

In the warm Orchid house species at present flowering are Vanda suavis, Cattleya Skinneri, C. Mossiae, Laelia purpurata, Oncidium Forbesii, Miltonia vexillaria, Epidendrum Burtonii, E. sceptrum, Dendrobrium thyrsiflorum, D. nobile Sir F. W. Moore, Laelio-Cattleya Aphrodite, L.-C. Fascinator, and Brasso-Cattleya Veitchii. —*Fred. W. Jeffery.*

PLANT COLLECTING IN THE AUCKLAND ISLANDS.

I EXPERIENCED the anticipations of opening a gift box when unpacking two boxes of plants from the Auckland Islands, which lie 290 miles to the south of New Zealand. This group has been well explored by botanists in the past, when access to the Southern Islands seems to have been more easily attained than it is in these days of public economy, but the interest in the flora of the different groups still remains, in fact, it seems to have been strengthened if we may judge by the inquiries from that home of gardeners—England. Farrer in *The English Rock Garden*, also stirs the interest by his remarks on Celmisia vernicosa.

The New Zealand Government steamer "Tutanekai," which attends to the lighthouse work, now visits the southern outlying islands once yearly to search for castaways, and to inspect the depots of provisions and clothing stored in shelter sheds for the use of unfortunates who may be wrecked on those inhospitable shores. There are no permanent residents on any of them. Previous to its last trip I secured the interest of Mr. McClay, the third officer, who promised to do what he could. I gave him as explicit directions as one who knows nothing about the locality can give to another who knows nothing about plants, and then waited his return in about six weeks. I had hopes that he might probably find Myosotis capitata, which Dr. Cockayne says is "perhaps the most beautiful plant in the New Zealand flora," and Celmisia vernicosa, but when the boxes arrived neither of the plants had been lucky enough to be transported to New Zealand.

It may be of interest to some of your readers to know what I received. There was a liberal amount of peat, for the soil of the Aucklands, at least on the lower levels, is peat. Being moist it was good for the clumps of plants and for the individual plants. I have also hopes that some stray seeds will germinate. Among the loose peat I found scraps or portions of plants with roots, which I have carefully planted. There were clumps of Stilbocarpa polaris, Chrysobactron Rossii, Anisotome latifolia and A. antipoda. There were also plants of Veronica elliptica, two varieties; Olearia Lyallii, with one plant of Dracophyllum longifolium. Probably next year I may try again. *Herbert Baillie, Public Library, Wellington, N.Z.*

PUBLIC PARKS AND OPEN SPACES.

SPRING FLOWERS AT BRIGHTON.

THE display of spring flowers in the public gardens at Brighton has been very greatly appreciated this season by the numerous visitors. The Valley Gardens provided the greatest attraction, where early and late-flowering Tulips, mixed, form the basis of the colour scheme. In most of the beds eight hundred Tulips were planted, together with twelve hundred carpeting plants. Some of the most attractive of the schemes of planting were as follow :—

Tulips Couleur Cardinal and chrysolora mixed, over double white Daisies; Tulip Keizerskroon, over dark Polyanthuses; Forget-me Nots, with a mixed planting of Tulips Overwinnaar, Suzon and Europe; Tulips Keizerskroon and Arms of Leiden, mixed, over a carpeting of mixed Polyanthuses; Tulips Prosperpine, Sir Thomas Lipton and Madame Krelage, mixed, over a ground work of double pink Daisies; Tulips La Remarquable, Pink Beauty and retroflexa, mixed, over double white Daisies; Tulips Overwinnaar, and Madame Krelage, mixed, with a ground work of double Arabis proved very successful, as also did Tulip Sir Thomas Lipton mixed with Tulip chrysolora.

The double white Daisy served as an admirable ground work for a mixture of Tulips Overwinnaar, retroflexa and Wouwerman; Tulip Madame Krelage, with a carpeting of the double Daisy Firefly; Tulip Keizerskroon, planted with Orange Bedder Wallflower; Tulips Prince of Austria and Dusart, mixed, planted with dwarf, yellow Wallflowers; Tulip Prince of Austria and the dwarf Wallflower Vulcan; Tulips Duchesse de Parme and Sir Thomas Lipton, mixed, planted with dwarf, yellow Wallflowers; Tulips Proserpine and Sir Thomas Lipton, mixed, with a ground work of Wallflower Fire King; Tulips Pink Beauty, and Gesneriana rosea, mixed, planted with Wallflower Faerie Queene; Tulips Couleur Cardinal and chrysolora, mixed, over a ground work of double white Daisies; and Tulip Keizerskroon, with a carpeting of mixed Polyanthuses.

APPOINTMENT AT GREENWICH PARK.

The announcement made in a recent issue of the *Gardeners' Chronicle* that a new superintendent had been appointed at Greenwich Park was probably the first intimation gardeners had that a vacancy had occurred. No doubt many gardeners with extensive experience in public parks would have liked to compete for such positions as this, but, of course, have no opportunity of doing so if vacancies are not advertised in the *Gardeners' Chronicle.* It is obvious that those who hold the National Diploma in Horticulture desire to have their claims considered in connection with such appointments, but failing an advertisement, these opportunities do not arise, and young gardeners will consider it is hardly worth while spending much time and money in obtaining the Diploma, which is sanctioned by the Government, if positions under the control of His Majesty's Office of Works are not open to competition. *N. D. H.*

NEW HYBRID ORCHIDS.

(*Continued from May 12, 1923, page 258*).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Bedfordiensis ...	C. Dirce × B.-C. Digbyano-Mendelii	Sanders.
Brasso-Cattleya The Queen	B.-C. Digbyano-Mossiæ Alexandra × C. Lady Veitch	Sanders.
Brasso-Cattleya Villa Jeanne	C. Empress Frederick × B.-C. Dietrichiana...	Stuart Low.
Brasso-Laelio-Cattleya Miss Fitzpatrick	B.-L.-C. Veitchii × C. Mossiae	Sanders.
Brasso-Laelio,—Cattleya Mrs. J. T. Watson	L.-C. callistoglossa × B.-C. Mme. C, Maron ...	Sir H. Leon.
Cattleya Aurealis	nobilis × Dowiana aurea	Sanders.
Cattleya Lady Duncan	Helen Langley × Mossiae Wageneri ...	Mansell and Hatcher.
Cattleya Phillipa	H. S. Leon × Dowiana aurea	Sir H. Leon.
Cattleya Sohma	Empress Frederick × Mossiae	Flory & Black.
Laelio-Cattleya Almos	L.-C. Pallas × C. Mossiae	Sir H. Leon.
Laelio-Cattleya Cintra	Epicasta × Orion Othello	McBean.
Laelio-Cattleya Clarilaw ...	C. Schröderae × L.-C. Helius	McBean.
Laelio-Cattleya Emily Methuen ...	Apollo × Baldockiana	F. J. Hanbury, Esq.
Laelio-Cattleya Homily	Haroldiana × Medina Excelsior	McBean.
Laelio-Cattleya Maxim	L.-C. Hyeana × C. Schröderae	Stuart Low.
Laelio-Cattleya Tenemos	L. tenebrosa × L.-C. Domos	Sanders.
Laelio-Cattleya Vaison	C. Mendelii × L. Cowanii	McBean.
Lycaste Gratrixiae	plana × Lawrenceana	Sanders.
Odontioda Bantingii	Odm. Uro-Skinneri × Oda. Bradshawiae ..	Mansell and Hatcher.
Odontioda Murillo	Oda. Chantecler × Odm. Aglaon...	Cowan.
Odontioda Selina	Oda. Othello × Odm. Lady Roxburgh	Sir J. Colman.
Odontoglossum Crisarrillus	crispo-Harryanum × illustrissimum	Geo. A. Wood, Esq.
Odontoglossum Halcyon	amabile × Lawrenceanum	Sanders.
Odontoglossum Imperial	Colossus × gandavense	Pantia Ralli, Esq.
Odontoglossum Mirumense	Aireworth × Mirum	McBean.
dontoglossum Perseus	Rolfeae × Leander	Sanders.
dontoglossum Selina	Maid of Gatton × (?)	Sir. J. Colman.
phro-Laelio-Cattleya Lena... ..	S.-L.-C. Laconia × C. Nena	Sanders.

THE BULB GARDEN.

NERINE BOWDENII.

This elegant Nerine, a coloured plate of which was given in *Gard Chron.*, June 2, is one of the most useful of the genus, and its name is so well established in gardens that it should not be interfered with. But the question is: Is it a species or hybrid? If the collecting of it as a wild plant can be established and the locality given and verified, that would settle the question. But, failing that, I shall always consider it of hybrid origin. A few years before Nerine Bowdenii was figured and described in *Gard. Chron.*, November 26, 1904, p. 365, where its complicated nomenclature, chiefly as a hybrid, was set forth, I received from the late Mr. Chalwin, then of the Botanic Gardens, Cape Town, bulbs which he said might be called N. flexuosa major or N. flexuosa rosea. Messrs. Barr and others had a few of the bulbs, and, on flowering them, Messrs. Barr wanted more, and also the correct name and origin of the plant. I obtained more bulbs from Mr. Chalwin, but he said he was by no means sure where he obtained the plant, but the nearest guess he could give was that they were from the small lot of bulbs which I had given the Botanic Gardens some time previously as Nerine flexuosa hybrids. I believe Sir Trevor Lawrence obtained an Award of Merit for this plant under the name of Nerine flexuosa major. Mr. Gumbleton called his N. excellens major tardiflora (*Gard. Chron.*, October 22, 1904, p. 292). All these earlier arrivals were identical with the plant known as N. Bowdenii, a name which fits it much better than N flexuosa var. or N. excellens, although the latter, which was raised by me for Messrs. Henderson, and sent out by Mr. W. Bull, is closely allied. What is required to be determined is whether this Nerine is a species or hybrid. *J. O'Brien.*

TREES AND SHRUBS.

PRUNUS RUFA.

Prunus rufa, a native of Central and Eastern temperate Himalaya, where it is found at a high altitude, is seldom seen in cultivation. Yet it should be common in gardens, considering it was introduced in 1897. I know it as a fairly well proportioned tree, 10 to 12 feet high. The reddish hairs on the twigs give this Prunus a marked and distinguishing character. The leaves are from 1 inch to 3¼ inches long, elliptic-accuminate, with serrate margin, the teeth being gland tipped and the leaf surface sparingly hairy. Another special character are the laciniate filiform stipules.

When first seen in flower, the tree has a resemblance to Styrax, with white flowers changing to pink, the blooms being somewhat pendant owing to the pedicels being rather ong and the flower unusually heavy, due to a somewhat fleshy calyx-tube, which is smooth, urceolate to funnel shaped, becoming rougher as it diverges into the lobes, which are gland tipped.

According to description, I believe this Prunus to be near Prunus Puddum, one of the most beautiful in the genus, but seldom seen in good condition out of doors. *C. F. C.*

PLANT NOTES.

OSTEOMELES ANTHYLLIDIFOLIA.

The genus Osteomeles has a very wide distribution, being found in the Andes of South America and in the eastern hemisphere from China to New Zealand. The Andean species have simple leaves, while the Asiatic and Antipodean species have pinnate leaves. They are distinguished from all other genera of the Pomaceous group of Rosaceae with pinnate leaves by the entire-margined and bristly-tipped leaflets. The leaves are closely allied to Crataegus, but the flowers differ therefrom in he shape of the petals, and the solitary ovule and persistent style, while the filaments in Osteomedes do not spread out as in Crataegus.

Osteomeles anthyllidifolia, the species upon which Lindley first founded the genus—and which at that time was the only species known with pinnate leaves—is a very interesting, as well as an ornamental evergreen shrub for the greenhouse, particularly if planted out in a border, as it will then grow from 6 feet to 12 feet high, and its long, graceful sprays of sweet-scented, white, Hawthorn-like flowers, which are borne during April and May in greyish, villous, terminal corymbs, from 3 inches to 4 inches across, are very decorative. Apart from the flowers, it is a graceful foliage plant, the pinnate leaves, from 2 inches to 4 inches long, consisting of 15 to 17 pairs of obovate-oblong, mucronate leaflets, $\frac{1}{3}$ inch to $\frac{1}{2}$ inch long, and these, arranged either opposite or alternate, are pubescent on both sides when young, becoming glabrous and lustrous above later, but still retaining the pubescence beneath. When not flowering O. anthyllidifolia resembles certain members of the Leguminosae.

The Cotoneaster-like fruits, which are pubescent, are green at first, turning red, and later to blue-black; the calyx is more or less bell-shaped, with five lance or awl-shaped persistent lobes. The shoots when young are densely villous, giving them a silvery appearance, the older branches and stem being a violet-brown colour.

O. anthyllidifolia is a plant very widely distributed, occurring throughout the south-eastern Pacific region, where it was first discovered by Menzies in 1792 near the summit of the Waiatua Mountain of Pahu in the Hawaiian, or Sandwich Islands, where it is known as "Uhi-Uhi." It extends across the Pacific, as by stepping-stones, to Pitcairn Island, Mangaia Island, the Bonin Group, and the Loo-chu Island, and is also very abundant in some parts of the Southern Shan States, where it is said to be a very conspicuous, but common plant, its profusion of white flowers in spring being reminiscent of our English Blackthorn. In certain localities it is a useful fodder plant, particularly around the neighbourhood of villages, where it is so freely eaten by cattle that the bushes become stunted.

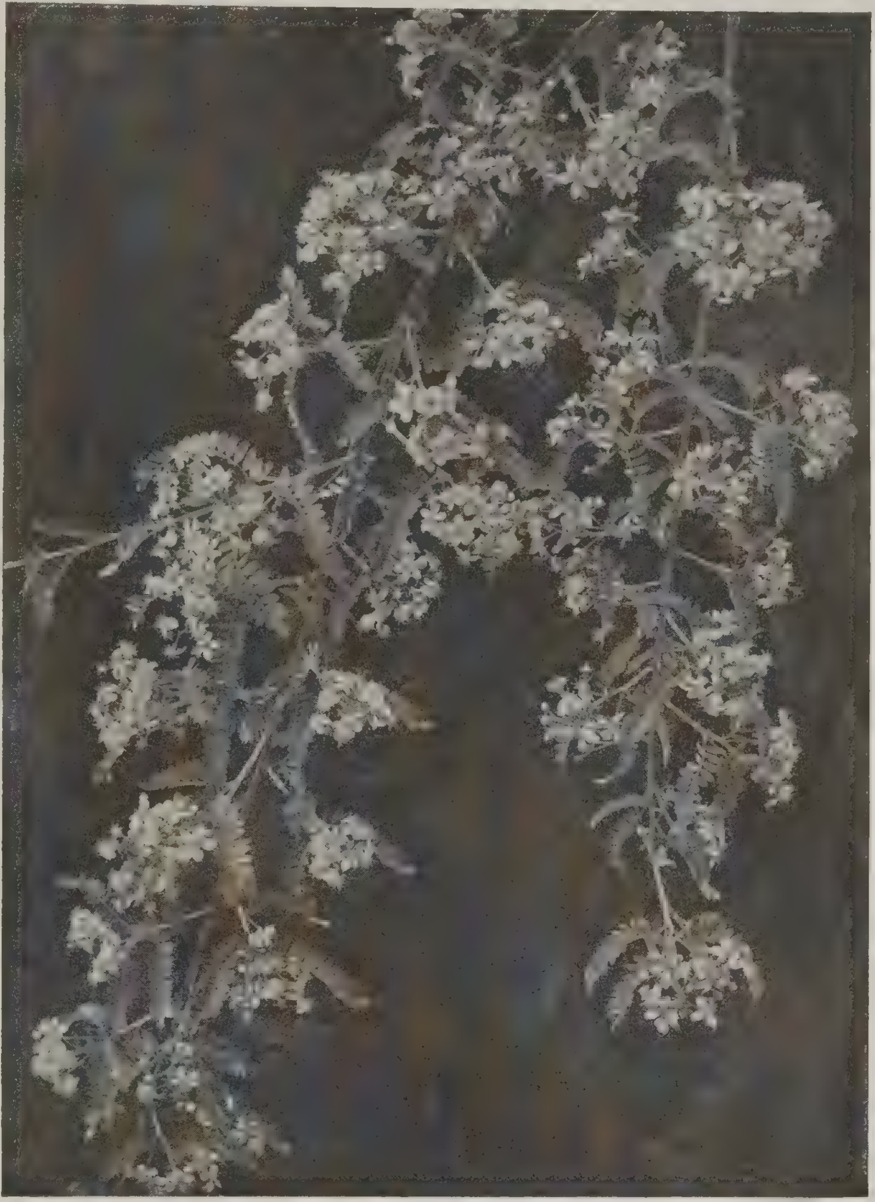

FIG. 160.—OSTEOMELES ANTHYLLIDIFOLIA.

In Rees' *Cyclopædia* the species is described under the name of Pyrus anthyllidifolia, but it differs from that genus in having bony fruits.

A plant of more recent introduction is Osteomeles Schwerinae, from Western China, and this was at one time included under Osteomeles anthyllidifolia, but the last-named differs from the Chinese plant in having the petals more spathulate, and the fruit hairy. It is doubtful if O. anthyllidifolia could be grown satisfactorily out of doors in this country, even against a wall, whereas O. Schwerinae makes a delightful wall plant in many places. The Osteomeles are readily raised from seed by cuttings or by grafting, a good stock being Cotoneaster acuminata. *F. G. Preston.*

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EARLY BOTANIC PAINTERS.

No. 6.—DANIEL RABEL.

OF the progress of the Florilegium at the end of the sixteenth century, we can only judge from a few surviving examples. The small number of known collections indicates the possibility of further collections being discovered, as the period was undoubtedly a prolific one for botanic painting. The increasing use of copper-plate engravings as botanic illustrations, at the end of the sixteenth and the beginning of the seventeenth centuries, proved a new incentive to good botanic painting, as the engraver could then do fuller justice in reproducing the light and shade of delicate painted work. It is hard to believe that Van de Pas did not engrave the fine plates of the *Hortus Floridus* (1614) from equally fine, or perhaps superior, paintings done direct from nature. If his paintings could be discovered, no doubt they would rank high in the history of botanic painting. The Dutch appear to be unrepresented by any good surviving botanic paintings executed in the early years of the seventeenth century. The Gemeente-Museum at Delft possesses a painted album of Tulips, by an unknown hand about 1630. As botanic paintings these are poor, but are of interest as bearing names (many after admirals of the period), and including a painting of a Tulip sold for 410 Azen (Fl. 3,000) at the height of the "Tulip-mania." I have sought in vain for some really good English work of the same period. A MS. in the Bodleian Library (Ashmole 1461), known as "Tradescant's Orchard," although interesting from the point of view of the history of fruit culture, is of very inferior quality as botanic painting. It is significant that it is to France that we must once more turn our attention to find botanic paintings which reach real excellence and worthily carry on the tradition of the Florilegium.

A magnificent manuscript in the Cabinet des Estampes, Paris (MS. 2748), is without doubt one of the wonders of early botanic painting. Hamy, in his memoir in the *Nouvelles Archives du Muséum*, Paris, ser. 4, iii, pp. 1-20, gives a full appreciation of it, but words fail to describe its many beauties, and it must be seen. Splendidly bound in red morocco, decorated with the Royal Arms, and bearing on the back the title *Fleurs peintes par Rabel en* 1624 (which is confirmed by Rabel's name and the date written at the beginning of the volume), it consists of one hundred leaves of very fine, whitish vellum, a little more than 35 cm. high and 23½ cm. wide, interleaved with paper. A small silk tag (varying in colour) was at one time attached to each leaf of vellum, to obviate the necessity of touching the vellum with the hand in turning over the leaves; but many of these have now worn away. Originally in the possession of the Duc de Mazarin, and "le président de Rieux," at the death of the latter, in 1747, it was sold for "396 l. 5s.," or a little less than four francs per leaf; the livre being slightly less in value than the normal franc. At the death of Gaignat it reached the sum of 1,020 livres, and at the sale of the library of the Duc de la Vallière in 1783, it at length realised a price somewhat proportionate to its great merits, and was acquired for the Royal Collections for 7,400 livres.

Daniel Rabel was the son of a painter and engraver, and was born in Paris in 1578. Like many other artists of his time he held a title from his Sovereign, that of *"ingénieur ordinaire pour le Roy en ses provinces de Brie et de Champagne."* He was also teacher of drawing to the son of the Duc de Nevers. The poet Malherbe wrote a most flattering sonnet to him, upon seeing the *Livre de fleurs*. The date of his death appears to have been 1637 (E. Piot, *Etat civil de quelques artistes Français*, 1873, p. 106).

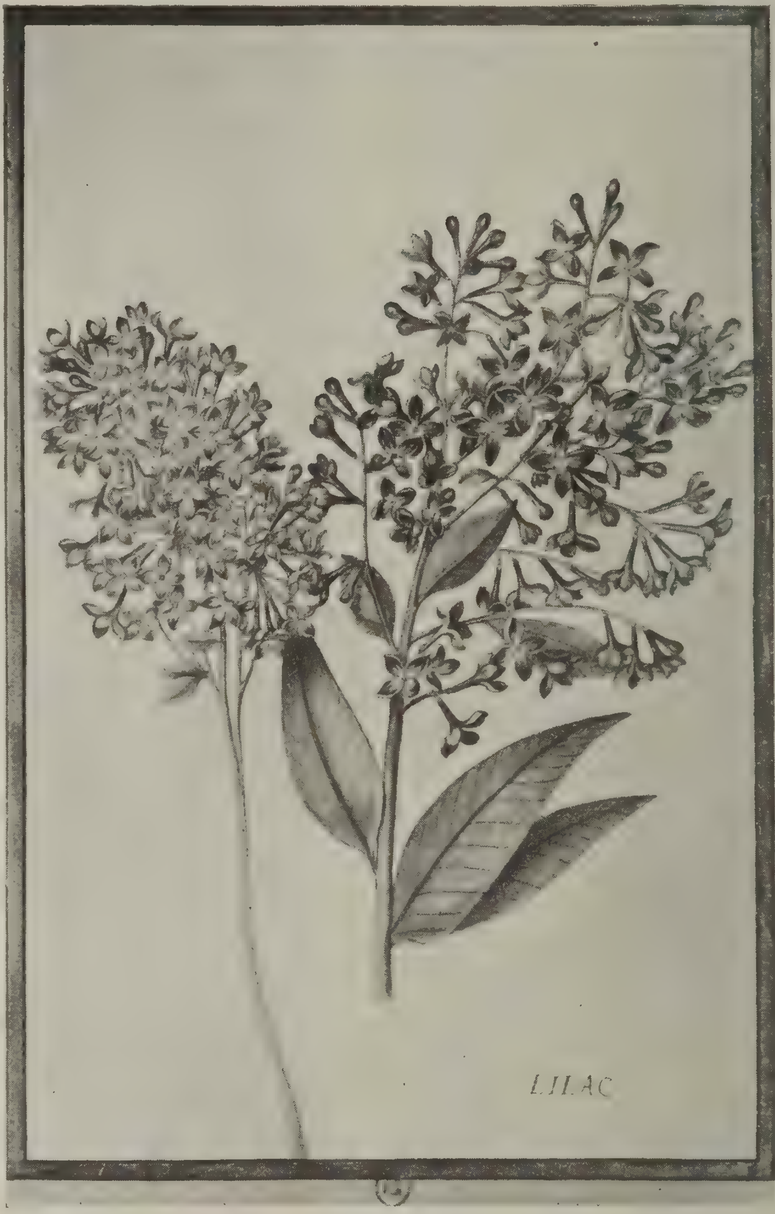

FIG. 161.—RABEL'S ILLUSTRATION OF LILACS.

The first point worthy of note in regard to the *Livre de fleurs* is the wonderful freshness and purity of the colouring. During a careful examination I failed to find any traces of faded or darkened colouring. Three centuries have failed to dim his exquisite work. He was, therefore, a worthy painter who had thoroughly understood his materials. His work is also remarkable as being done almost entirely in water-colour wash. Where artists both before and since his time have fallen back upon body-colour to depict complex colour effects, he relied upon his deftness in applyin washes and touches of colour just where they were wanted. His beautiful and highly-finished paintings are most delicate and true in colour; yet there is not the slightest trace of a "pretty-pretty" style about them. His exquisite work was the result of a fine restraint, a superlative mastery of the subtilities of colour, and an almost marvellous harmony between eye and hand. Few definite preliminary outlines are observable, but these were no doubt executed with the lead with such delicacy that the subsequent water-colour wash disguised them completely. His water-colour wash was applied fairly thinly, thus making full use of the whitish ground provided by the vellum. The delicate gradations of colour in the petals of the flowers were obtained by intermingling long, narrow touches of colour applied with a very fine brush. The leaves were often outlined with ery fine green line. That some of his leaves slightly conventional in treatment is the y fault that can be found with this painter's k. Each page is enclosed by a narrow d border, and the plant-names are written gold. There is little doubt that the sustained ellence exhibited throughout this beautiful . marks it as the *chef d'œuvre* of a master early botanic painting; and no naturalist ld want more than is so faithfully rendered e, either as regards the flowers or the in- ts. The fine finish given to these studies is a itimate one—*i.e.* the details appear as would naturally seen from a fairly close view the objects. Rabel fulfils in his work all essentials of painting flowers in miniature.

As is usual with this type of botanic illustra- n, the flowers depicted are mostly those ltivated in the gardens of the period. A great ray of Tulips, Narcissi, Anemones, Carna- ns, etc., are present. The first painting is remarkable study of the Green Hellebore, e peculiar greeny-whiteness of the flowers ing well represented. The collection con- ins several exotics—two species of Canna, o of Yucca, the Canadian Martagon Lily, a ctus, etc.

The two photographs reproduced on p. 336 d p. 337, showing Lilac of two colours (Fig. l), a red Lilaceous plant, and the famous Em- eror Moth (Fig. 162) cannot give any idea of the quisite colouring of the originals, in which eir charm chiefly lies.

Rabel's insects are particularly well executed. s with his flowers, although the aim he had view was the exact representation so dear to ll true nature lovers, yet his fine artistic sense d restraint were in full play, and would not llow him to be satisfied with a mere slavish py of the external aspect. To him neither lants nor insects became so much mere pattern- g to be imitated. His pictures are exact, but here is something more also; and in turning he leaves of his beautiful MS. one cannot ut believe that he managed to include in his vork some of his intense love for natural things. eetles, grasshoppers, butterflies, moths, flies, aterpillars, etc., are all given a kind of im- nortality from his brush, for they appear as if till alive on his pages. His flowers are still resh after the lapse of three centuries. The bbé Rive, librarian to the Duc de la Vallière, nore than a century ago called the attention of aturalists to the wonderful Emperor Moth, "*le papillon de nuit, appelé le grand paon, ui semble être endormi sur la page ou il est representé.*" This fine piece of work is on folio 74, and shows the upper surface of the moth. Jacques Le Moyne's Emperor Moth shows the under surface, and has the antennae intact, which are missing in Rabel's painting.

Seven separate paintings of plants by Rabel are also known, dated 1631-32, these being preserved in the Muséum d'histoire naturelle, and the Cabinet des Estampes, Paris. He was also a painter of birds, for the poet Scudery wrote a poem entitled *Des Oyseaux peints en miniature par Rabel*, in which he remarks that they are so life-like that if a window could be opened they would fly away! No trace appears to be left of these paintings, but some day they may come to light.

The relation between Rabel's *Livre de fleurs* and the engraved book *Theatrum Florae*, Paris, 1622, is not generally known. The Abbé Rive was the first to make known that the engravings were identical with Rabel's paintings. The good Abbé was puzzled by the discrepancy between the dates, the engravings being two years earlier than the paintings; so he concluded that Rabel must have done the engravings first, and made the paintings from them? The discrepancy still exists, however, and one can only presume that the note at the beginning of the MS. is not Rabel's, or that he wrote it from memory at a later date. As Rabel is known as an engraver, the *Theatrum Florae*, which usually appears in bibliographies as an anonymous work, ought to be credited to him. The first edition is very scarce, but there are two others, those of 1627 and 1633, only differing from the original in the altered title-pages. *S, Savage.*

INDOOR PLANTS.

RICHARDIA.

Richardias (syn. Calla) are noble flowering plants, commonly known as Arum Lilies, and are particularly valuable when grown in pots for conservatory and other decorations. They are of easy culture, and with proper management many of them may be had in flower for several months of the year. The spathes are exceptionally useful for cutting purposes, lasting several days in water. R. Elliottiana, is a beautiful pure yellow spathed species, introduced from South Africa in the nineties of the last century. This Richardia attracted a large amount of attention, and was greatly admired when exhibited for the first time, but for some unexplained reason it is very seldom met with at the present day. It is a novelty in itself with its rich golden spathes, and trumpet-like tube four to five inches in diameter at the mouth. The spadix is of a deeper yellow than the spathe. The leaf is thick in texture, of a dark green colour, evenly spotted and marked with white.

The plant is easy of culture, and may be readily increased from seed; seedlings raised from seed sown early in the season will flower the following autumn, but the first spathes will not be of large size. The young tubers should be allowed to rest, and started again in the spring, when they will produce fine spathes in the summer. This Richardia may also be increased from suckers taken from the old tubers when repotting them in the spring. The plant should be allowed to rest after flowering.

The first batch should be started early in the year for early flowering; successional batches should be introduced to warmth to flower later. Two to three year old tubers give the finest inflorescences; after that period they begin to deteriorate, especially if the plants have produced a crop of seed.

After potting them place the plants in an intermediate temperature, water them sparingly until the roots are active, then give more water, and, when the spathe begins to show, a little liquid manure.

R. Pentlandii is a fine companion to R. Elliottiana, from which it differs in the foliage being wholly green without any spots. The spathe is pure yellow with a black band at the base. This species is not such a vigorous grower as the former, therefore it requires a little more care. Both species should be allowed a period of rest after flowering, allowing the soil to get almost dry, before starting them in the spring. In potting Richardias use thoroughly clean, well drained receptacles. Press the soil firmly and be careful not to over pot the plants, as they flower best in moderate-sized pots. Rich fibrous, turfy loam, mixed with a little decayed

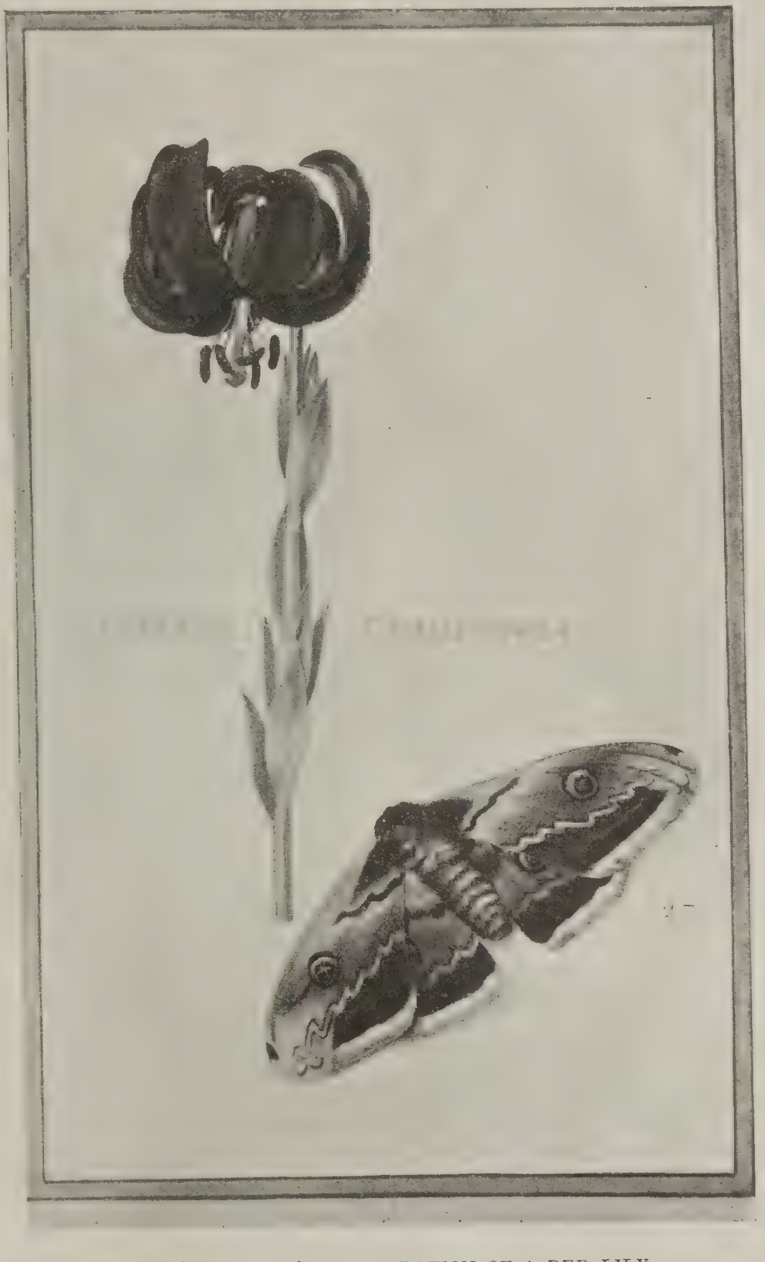

FIG. 162.—RABEL'S ILLUSTRATION OF A RED LILY.

cow manure, and old leaf mould, provides a suitable rooting-medium.

There are several other species and varieties of this type, but none equal to those mentioned, either in size or colour. Amongst them are Mrs. Roosevelt, a pale yellow, vigorous growing variety; Solfatare, creamy-yellow; hastata, greenish-yellow; melanoleuca, spathe pale yellow, black at the base, spadix white; and albo-maculata, white, with silvery spotted leaves.

The greatest favourite, however, and the most popular, which has been known and grown in this country for nearly two centuries, is R. africana (syn. Calla aethiopica, C. africana), commonly known as the Arum Lily, and Lily of the Nile. The large spathes are creamy-white, and in great demand on account of their lasting properties, for the making of wreaths and other floral designs.

The common Arum Lily is cultivated by the thousand, and is invaluable to the florist. The plant is of the most easy culture, and when in active growth may be treated as a semi-aquatic; it is practically impossible to give it too much water. Liquid manure and soot water once a week will assist the development of the spathes when they commence to appear.

If desired to have the plant in flower in the spring it is necessary to repot the crowns in the autumn, and place them in a warm house. Water should be applied sparingly until the plants commence to grow actively, then a liberal supply of moisture is beneficial to them. This useful plant may be had in flower nearly all the year round. It is increased from suckers and division of the roots in spring.

When the plant commences to start into growth, the old soil should be shaken from the roots, and the plant repotted, afterwards placing it in a position where it will not get the direct rays of the sun. When well established this Richardia requires to be liberally supplied with water, and should be given liquid manure once a week.

Old crowns should be potted in rich soil, consisting of two-thirds good turfy loam, one third leaf-mould, and well matured cow manure, with silver sand. Provide plenty of material for drainage.

Arum Lilies do well planted out-of-doors in a moist, sheltered situation during the summer, in rich soil, lifting and potting them in the autumn. They require a considerable amount of moisture after they are lifted from the open ground, and should be placed in a close, moist atmosphere, until they are established. During the winter, whilst resting, they should be kept moderately dry for a time, in a temperature of about 45°, before starting them in the spring in a temperature of 60° to 65°. They may be grown in any ordinary greenhouse, but the flowers will not be so fine as when grown in a warmer house. Wherever grown, they thrive best with plenty of moisture.

A very pretty miniature form of the Arum Lily is R. africana "Little gem," with creamy-white spathes. This miniature form is particularly appreciated for use as cut flowers in the making of wreaths and other floral designs. It is not a strong grower, and does not require a large pot.

If green fly makes its appearance on the plants when they are coming into flower, fumigate the house, but be careful that the foliage and inflorescences are dry before doing this. *John Heal, V.M.H.*

THUNBERGIA.

Thunbergia alata and its varieties are easily-grown, warm greenhouse, twining annuals, flowering during the summer and autumn from seed sown early in the year. Light, rich soil, and frequent feeding of the roots when established, are essential for their continuous flowering. In the greenhouse they may be trained on the roof, pillars, the edge of the plant staging, or grown in baskets. Like other tropical plants of a scandent habit, whose season of growth is limited, they are of rapid growth, and require almost daily attention in the matter of training the shoots.

The flowers are produced in the axils of the leaves; they are tubular, with an oblique limb of five rounded lobes, coloured yellow, purple, white and orange.

The perennial Thunbergias are among the most showy of greenhouse climbers. They are strong growers, and when established flower freely; the spring-flowering species are particularly effective. T. coccinea and T. mysorensis flower during the late winter and early spring, the yellow and red flowers being produced in long racemes. T. Vogeliana flowers continuously, bearing deep violet flowers that have a yellow throat. The perennial Thunbergias thrive best when planted in a prepared border, the main growths being trained over a trellis. The young growth is naturally pendent, and may be assisted in this respect by placing lead rings at intervals along the stems. *Fred. W. Jeffery, Dalserf, Lanarkshire, N.B.*

THE SKUNK CABBAGE.

In the *Gard. Chron.* for April 14, 1923, over the signature of *F. G. Preston*, of the Botanic Gardens, Cambridge, appears an article on Symplocarpus foetidus, in which a quite erroneous impression is given as to the habits and fruit of this most interesting plant—a common wilding with us. The root stock does not normally branch, but grows upward in a single stem like the Palms, maintaining its position with the crown a little below the surface by thrusting down new roots each year, which, when well anchored, are contracted, dragging the trunk downward into the mucky soil.

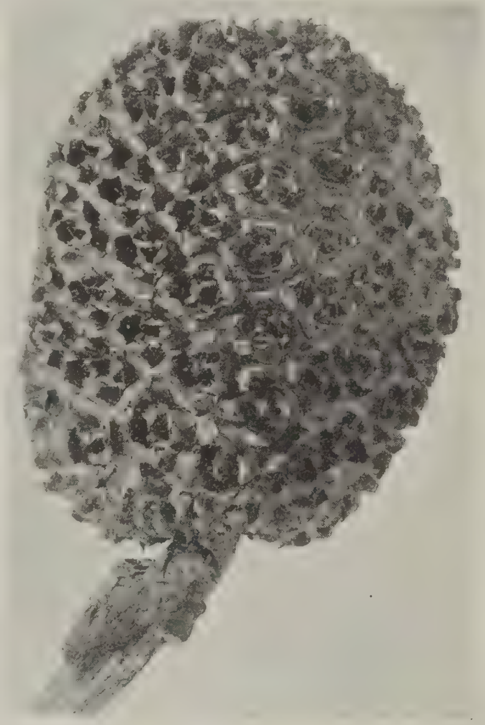

FIG. 163.—FRUIT OF SKUNK CABBAGE (SLIGHTLY REDUCED).

A German botanical writer seems to be responsible for the misconception regarding the bloom, which is said to occur only in alternate years. As a matter of fact, the flowering spathes are produced by the successive conversion of the terminal bud, with always two leaves intervening, and so must continue with clock-like regularity so long as the plant lives. Some of these blooms are absorbed each season to permit the entire energy of the plant to be devoted to maturing the flowers and fruits not suppressed.

The habit of the Skunk Cabbage is to bloom annually, but the season of blooming may be any time from November to March if the climatic conditions are favourable, the foliage development occupying several months of spring and early summer, thus they are first seen in winter or early spring, with the one to several spathes adjoining a long, tapering, wintering-over bud that will later develop into the large, Cabbage-like mass of foliage.

It may also be interesting to know that these quaint and curious flowers are a long time forming, often requiring from two to three years to develop from the earliest stage at which they may be detected with the aid of a microscope, to the time of actual flowering.

Unlike their relative, the Indian Turnip, Arisaema triphyllum, the fruit is not developed into "a large head of one-seeded berries" as stated, but the entire inflorescence is aggregated somewhat after the manner of the Pineapple (Fig. 163), so that the large seeds are completely embedded just under the surface of the spongy-fleshed fruit (Fig. 164).

The foetid odoriferous principle from which the common name is derived is very pronounced in the spathe when actually in bloom, without need of crushing, and is thought to serve as an invitation to carrion-loving flies, but the same odour, mixed somewhat with one of an Alliaceous character, is readily obtained by slightly crushing any part of the plant. *J. Marion Shull, Washington. U.S.A.*

MARKET FRUIT GARDEN.

Fruit prospects underwent a decided change for the worse during May, owing to the low temperature and, in my district, the continual rainfall. Vegetation was almost at a standstill, so that a season which began by being forward is now backward. It was the wettest May of which I have any record. The total rainfall was 3.74 in., which is very nearly 2¼ in. over the average of the previous eight years. After the first week the sun was hardly seen, and there were several ground frosts and one heavy shower of hail.

INSECT PESTS SERIOUS.

Conditions were just such as to favour insect pests, already more numerous than for several years. The trees could not make progress against them, and the weather hindered spraying and often made it ineffective. The slow development of the Apple bloom gave every chance to the Apple blossom weevil, with the result that on some varieties 40 per cent. of the bloom proved to be "capped" and worthless. This, however, may not be of much consequence, as in most cases it does not amount to more than a useful thinning of the crop. I still have hopes of a fairly good crop of Apples, though it is too early to say for certain.

Caterpillars, which were numerous, have been thoroughly well controlled by spraying before and after blooming with arsenate of lead. I certainly gained, so far as caterpillars are concerned, by adding arsenate to the nicotine wash used on the former occasion; but, as this necessitated the substitution of casein spreader for the usual soap (which should not be mixed with arsenate), I probably lost in respect to the control of aphides. The bloom clusters were kept fairly clear, but there has been a lot of leaf-curling aphis on the trees since. I thoroughly believe in the use of casein spreader with arsenate of lead and Bordeaux mixture, but I am reluctantly forced to the conclusion that it is not a complete substitute for soft soap with nicotine. Another year I shall return to nicotine and soap for the first spraying given just before blooming. This wash immediately kills all aphides and young caterpillars that are touched by it. If this is followed directly after the fall of the petals by arsenate of lead and a spreader, to kill any surviving caterpillars, and those that have hatched out later, there should be little further trouble from insect pests.

There is every reason to expect that scab will be serious on Apples and Pears in districts where the May rainfall was excessive. A cold, wet May is well known to favour this disease. I found it on the leaves of Allington Pippin at the middle of the month, when the first spraying with Bordeaux mixture was being done. I intend to spray three times with Bordeaux mixture this year, instead of twice as usual, as othing reduces the value of the crop for market ore than scab.

Bad Season for Plums.

Plums have passed through a most trying me. As mentioned in last month's notes, the ttack of leaf-curling Plum aphis was most evere. Here undoubtedly the omission of soap om the nicotine wash was unfortunate, for this a difficult aphis to kill. Following the severe unishing of the trees by this pest came a swarm f Hop-Damson aphis, which massed on the nderside of every leaf and in many cases on ne fruit too. I have never before seen this phis on Plums to any serious extent. Forunately it does not curl the leaves, and so emains exposed. Copious spraying with nicone and soft soap made almost a complete learance.

Worse than the insect pests is the attack of rown rot on Plums. Probably drier districts ave escaped this, but with me it is more severe han ever before. Pond's Seedling and President re the worst varieties, and cannot now bear ny crop worth mentioning. Some trees of the tter variety are absolutely without green aves. These trees will take several years to ecover, if they live at all; and the labour of utting out dead wood will be heavy.

There is apparently no efficient preventive of rown rot. I had thought that winter spraying ith copper sulphate was a preventive; but all y Plums received this treatment shortly before looming, and some of them had Bordeaux mixure just after blooming as well. It is said that all the dead wood, leaves, and dried-up fruits re cut off and destroyed in autumn, the trees tart the next season free from brown rot; but the winter I noticed blotches of the disease n the young shoots. This, no doubt, was a esult of the previous cold, wet season; and onditions during the past month were exactly uitable to the spread of the trouble.

The only varieties which now look like bearng full crops are Victoria and Monarch. iver's Early Prolific, which has borne heavy rops for many years in succession, has set only very light crop, though it bloomed profusely. zar and Belle de Louvain are resting after an ver abundant yield last year. Pond's Seedling nd President, which at one time promised well, re ruined by brown rot, as already mentioned.

Such a season serves as a reminder that, in pite of the most careful preparations and preautions, fruit growers are very much at the ercy of the weather and the pests and diseases which it favours. After giving every attention o manuring, pruning, and spraying, I have to dmit disappointing results. However, bad fruit easons are not always the least profitable. Reorts from other districts, most of which are ater than mine, become less cheerful every veek.

Grass Orchards.

My grass orchard is the most promising for pples this year. The abundant crop of grass s now being mown and allowed to lie where it s to rot into the land. Farmers who see this rchard always want me to run sheep in it, but hey admit that the sheep would gnaw the lower ranches of the half-standard trees, and would equire fencing, dipping, attention to foot-rot, nd turning out when spraying was in progress. A good many growers run pigs, which are ertainly less troublesome. A neighbour is tryng young pigs in an orchard of trees and bushes which has become very foul with creeping Bentgrass. They certainly do a great deal of cultivation, but do not treat the whole area evenly. Holes are made in places, and these become full of rain water, and badly puddled about, whilst other parts are neglected. It does not look as if the pigs would ever cultivate the whole orchard thoroughly, though they are fairly thick on it, and certainly eat down a great deal of the grass. Probably they need to be concentrated on a still smaller area.

The orchard cultivation question is always troublesome. In a season like this it is impossible to keep down weeds by horse cultivation and hoeing, and much expensive work is wasted. One orchard, ploughed last autumn, became so weedy before the land was dry enough to cultivate in spring, that little impression could be made on the rubbish. This has been ploughed again, as shallowly as possible; and yet countless roots were disturbed only 4 in. below the surface. This makes me wonder whether such an orchard of established Apples would not be better grassed down. If shallow ploughing injures roots, so must digging and even the horse cultivator. Grassing means rather smaller fruit, but there is ample compensation for this in higher colour. It is only in a season of prolonged drought that grass orchards suffer.

I am trying two orchards on a half-and-half system. The alleys between the rows are cultivated by horse-drawn implements, leaving the strips on which the trees actually stand to be mown instead of hoed. This does away with the expense of hand hoeing, whilst manures can be worked into the cultivated strips. I am anxious to see whether this plan gives any higher colour than full cultivation. If so, it would seem to combine the advantages, whilst avoiding the faults, of both grass and cultivated orchards.

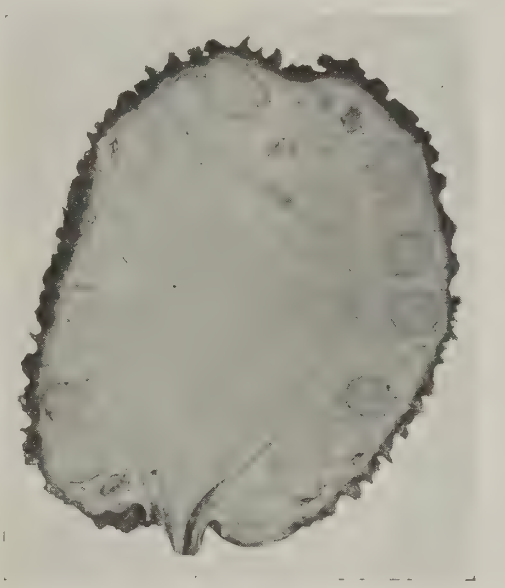

FIG. 164. - LONGITUDINAL SECTION THROUGH A FRUIT OF THE SKUNK CABBAGE, SHOWING EMBEDDED SEEDS. (SEE PAGE 338.)

Pollinators for Cox's Orange Pippin.

I am much obliged to *J. F.* (p. 290) for his list of varieties which can be planted as pollinators of Cox's Orange Pippin. I am very glad to know that Devonshire Quarrenden can be used with confidence for this purpose; and the choice will certainly fall on this variety. I have planted Devonshire Quarrenden in two young orchards, but they are only just beginning to bear; still, the young trees grow so well that it seems fairly safe to assume that the variety is suited to the locality. Certainly, the fruit will be readily marketable, as it is popular with the public. I prefer early dessert Apples to late varieties which have to compete with the full flood of imported fruit. Devonshire Quarrenden is subject to scab, but then so is Cox's Orange Pippin; and both will be ready for spraying at the same time.

Double-worked Cox's.

I have top-grafted Cox's Orange Pippin on to some trees of Royal Jubilee. The latter, planted as maidens on crab stock, were put in for this purpose. I want to see whether Royal Jubilee will transmit to the Cox's any of its immunity from canker. This is the healthiest variety in my orchards, not being troubled in the least by fungus diseases, and very little by insect pests. Caterpillars do not seem to care for it. It bears heavily in alternate years, and the fruit is very fine, but unfortunately does not sell well except in a season of scarcity, because it is a mid-season variety. *Market Grower.*

A GARDEN SUBSTITUTE FOR FARMYARD MANURE.

(*Concluded from page* 322.)

The treatment of the material classed as C calls for considerable attention, one drawback being the difficulty of consolidating the mass to promote fermentation. It is also essential that the material should be treated while fresh and green, as, if left exposed, lignification proceeds, and the breaking down of the tissue becomes much more difficult. To assist in the consolidation of the mass, it is wise to mix it with an equal quantity of partially decomposed material, such as would be derived from Class B, in the early stage of fermentation. If such materials as Rose prunings, Loganberry, Raspberry, and other fruit-tree summer prunings, shrub prunings, and hedge trimmings are stacked and consolidated in large heaps in this way, and left a year, the resulting product is equal to the foregoing, and decomposition is so complete that the uninitiated would have difficulty in determining its source of origin.

Although these processes may be carried out quite easily by means of open heaps, considerable advantages accrue from the use of bins, which may be constructed of either concrete, brick, or rough timber. These bins aid in conserving moisture, which is most helpful in treating the coarser materials. The size of the bins may be governed by local conditions, but a convenient size is 25 feet long, 12 feet wide, and 3 feet deep. These should be built with a slightly sloping floor, and provided with a discharge pipe at the lower end. A sunken pit should be arranged to collect the drainings from one or more bins. These drainings may be used to moisten the refuse in the bins when necessary, and when not wanted for this purpose they provide a useful liquid manure.

The turning of straw into manure without the intervention of the animal is an analogous process to that described for vegetable refuse. The Argicultural Developments Company, established at Harpenden, carries on this work on a large scale and produces, scientifically, an artificial farmyard manure. The raw straw is treated with chemicals to set up an artificial fermentation. In about three months the tissue becomes completely broken down, leaving a product similar in appearance and fertilising properties to partially decayed farmyard manure.

In discussing the subject of using this material as a substitute for farmyard manure, the question of cost must necessarily be considered. Even with the present restricted supply of farmyard manure, the would-be buyer is bound to ask himself—Which costs the most? In this case the advantage is distinctly on the side of the vegetable manure producer. The refuse must be dealt with in some way, and even destroying it by means of the bonfire costs something in labour. The price of farmyard manure is high at the source, the ultimate cost depending on the distance of transport, which cost is eliminated in the case of refuse. The experience at Pyrford is that a man can deal with a sufficient quantity of this material to produce approximately 250 loads of manure in a year. This works out at under 10s. per load, which compares very favourably with the price of farmyard manure, providing the fertility producing qualities are at least equal.

The results of the experiments set out below prove conclusively that weight for weight the vegetable manure is decidedly superior to farmyard manure. These experiments were carried out at Pyrford over a period of two years in boxes under glass, and also in the open field.

In the former the boxes used were 1 foot square by 9 inches deep, the crop grown was Mustard. and the method of comparing was the weighing of the dried plant tissue. In only one case, as shown in series III., has the result been in favour of farmyard manure, and the abnormaly low return from this application of vegetable manure is difficult to understand; but it was probably due to some toxic condition set up in the heap. The results, as a whole, prove beyond doubt that potential fertility exists in a very high degree in garden refuse, and that its ultimate value depends largely on the manner of decomposition, concerning which much still remains to be learned

In the open-field experiments two series of half-rod plots were laid down, and each series was manured alike. In one series Potatos were grown the first year and Mangolds the second year; in the other series Mangolds were grown the first year and Potatos the second, no further manure being used for the second crop in either case. Each series was grown in duplicate, the recorded crop being the average. The crops were weighed as lifted

The very low yield of Potatos in 1921 was due to the drought, the total rainfall recorded during the five months between the planting and lifting of the crop being only 3.47 inches. The Mangolds also suffered from the same cause, but made considerable weight after the Potatos had ripened.

From these tabulated results it would appear that applications as light as 10 tons per acre are not proportionately as beneficial as heavier applications, but one can hardly take this as final as the drought of 1921 created other factors. It seems clear that the application of 20 tons per acre is an economic one, and the maximum at which one should aim. So long as the land receives a reasonable dressing of organic matter, it is easy to supply elements needed for particular crops and conditions by the application of concentrated chemical fertilisers.

MUSTARD CROPS GROWN IN BOXES

Series	Sown	Harvested	Manure used.	Rate p. ac.	Dry wt. of crop
I.	1921 April 14th	1921 May 29th	Farmyard...	tons 32	22 grams
	,,	,,	Coarse vegetable refuse	,,	51 ,,
	,,	,,	Grass and leaves 1 week in heap ...	,,	60 ,,
	,,	,,	None (Control)		7 ,,
II.	May 19th	June 25th	Farmyard...	32	25 grams
	,,	,,	Grass and leaves 2 weeks in heap...	,,	74 ,,
	,,	,,	Grass and leaves 3 weeks in heap...	,,	74 ,,
	,,	,,	Control		5 ,,
III.	July 28th	Sept. 16th	Farmyard	32	74 grams
	,,	,,	Coarse vegetable refuse	,,	15 ,,
	,,	,,	Control		8 ,,
IV.	1922 April 13th	1922 May 29th	Farmyard...	32	32 grams
	,,	,,	Coarse vegetable refuse 1 month in heap	,,	27 ,,
	,,	,,	Coarse vegetable refuse 2 months in heap	,,	30 ,,
	,,	,,	Grass and leaf 10 days in heap	,,	41 ,,
	,,	,,	Control		6 ,,
V.	May 9th	June 15th	Farmyard...	32	32 grams
	,,	,,	Grass and leaf 3 days in heap ...	,,	32 ,,
	,,	,,	Grass and leaf 10 days in heap ...	,,	41 ,,
	,,	,,	Fresh grass cuttings	,,	31 ,,
	,,	,,	Control		10.5 ,,
VI.	Sept. 26th	1923 Jan. 31st	Farmyard...	32	11 grams
	,,	,,	Coarse vegetable refuse 2 m'ths. in heap	,,	20 ,,
	,,	,,	Coarse vegetable refuse 2 weeks in heap	.	2[illegible] ,,
	,,	,,	Control		4 ,,

OPEN FIELD TRIALS.

Series.	Manure; rate used per acre	Crop 1921: Weight roots foliage					Crop 1922: Weight roots foliage				
			lb.	oz	lb.	oz		lb.	oz.	lb.	oz
	None, control	Potatos	3	9	0	4	M'golds	35	12	7	12
	tons										
I.	Vegetable 10	,,	5	5	2	9	,,	70	4	19	12
	,, 20	,,	20	3	13	12	,,	200	12	26	12
	Farmyard 10	,,	8	13	2	9	,,	144	4	29	8
	.. 20	,,	10	1	4	4	,,	194	8	41	8
			lb.	oz.	lb.	oz.		lb.	oz.	lb.	oz.
	None, control	M'golds	37	4	5	4	Potatos	22	12	3	8
	tons										
II.	Vegetable 10	,,	84	4	18	4	..	26	0	4	0
	,, 20	,,	144	8	26	8	,,	42	0	8	0
	Farmyard 10	,,	102	12	13	8	,,	43	4	7	0
	,, 20	,,	126	0	22	8	,,	57	12	16	12

W. Auton, Pyrford Court, Woking.

HOME CORRESPONDENCE.

African Bark Cloth.—The reference, on page 295, to "African Bark Cloth," reminds me that the natives of the Buganda Province of the Uganda Protectorate used bark cloth as clothing exclusively until recent years. It has now become almost entirely superseded by British and American Cotton goods. Several species of Ficus were grown for the purpose, but I never found any other trees used. They form large forest trees, and are epiphytic in their early stages. The natives, however, cultivate the trees they strip for cloth. Large poles 8 feet long and 4 inches in diameter are stuck in the ground and they quickly root and form trees. Every hut was surrounded by Ficus trees grown for this purpose, and in time they shaded out the Bananas growing amongst them. The native capital of the country is a Ficus forest and is known as "Kibuga," the name of the bark cloth being "Lubugo." It is now no longer the custom for Ficus to be planted when the hut is built, or Bananas to be planted by the prospective bridegroom. The stems are stripped of the bark to as high as a man can reach. Banana leaves are then tied round the exposed stem for a few weeks. The bark quickly renews and is repeatedly taken off. The first stripping gives only inferior cloth. In preparing the latter the strips of bark are beaten with mallets of different weights and differently grooved. To commence with, a heavy mallet with large grooves is used, then a lighter one with smaller grooves, finally a still lighter and more finely grooved one. The Ficus has another use in Uganda, as telegraph poles. Large poles are planted, and as they root, and grow, they have a much longer life, and are immune to attacks of white ants to a greater degree than ordinary, seasoned timber. They are, moreover, obtainable throughout the country. The only attention they need is the reduction of the head occasionally. *E. Brown.*

[With this note Mr. Brown sent three specimens of bark cloth, which, until carefully examined, have the appearance of woven material.—Ed.]

Gardeners' Wages (see page 291).—I am quite willing to supply particulars to *S. H. G.* in any way he wishes, but the point to remember is that this discussion is on gardeners' wages and conditions in general, with a word for the ex-Service man, and we should not base our opinions on individual cases. Like *S. H. G.*, and others, I am aware that many estates have been closed, sold or let, but that does not alter his observation on p. 203: "By then he is usually getting on in years, and a reason is found for discarding him for a younger, cheaper man." It was this remark that led me to ask him what class of private service *S. H. G.* was accustomed to. Such remarks as discarding old servants and gentlemen's servants filling the workhouses, when read by some of our employers, will not improve the gardener's lot, and if we are intent on improvement we must certainly use other methods. I did not ask *S. H. G.* about his position, but I would remind him that if some ex-Service men do get good pensions they would prefer to be as they were in pre-war days. *T. W.*

——This discussion is concerned with gardeners' wages generally and those of head gardeners in particular; therefore comparisons between ex-Service men and non-Service men do not apply. I am not under-estimating the services the soldier rendered, far from it; but there is another side to the shield, as I see it, and that concerns the man who stayed at home through no fault of his own. If he should get out of work, he is "up against it" with a vengeance, for he has only himself to rely on, and is handicapped in not being an ex-Service man, even though all ex-Service men did not go overseas. This seems to me to be the primary cause of low wages, and one which can hardly be altered in the case of a head gardener. In my opinion, no Union or Association can help him to higher wages; he must do what he can for himself. *Henry Arnold, The Gardens, Bedgebury Park, Goudhurst.*

What is a Rock Garden?—Mr. W. Watson' remarks on p. 323 are appropriate, and hi ideas of a rock garden very much to the poin The rock garden should be the happy hom of wild plants from aquatic to xerophyte, an therefore conditions should be found so varie as to accommodate different types according t their liking. Based on practical experience o 15 years I have come to the conclusion that 9 per cent. of alpine plants may be grown succes fully on the flat without showing a single pi of rock above ground I am sure it can b done. I would certainly not do it, becau without a natural setting of rocks, the effe of even well-grown plants, would be le pleasing to the eye. Personally I liked Mess Tuckers' exhibit best at Chelsea show, as to m mind it showed to advantage the three essenti points of a desirable rock garden, viz., rock plants judiciously placed, and the latter we grown. In Captain Symonds-Jeune's schem there was an admirable piece of rockwor geologically well planned, which would ha been a fine feature in a larger rock garde Being exposed, not many plants would fe happy on it for any length of time, excep Sedums and Sempervivums. The point I wi to emphasise is that we often see too much ro and too little garden. *Amateur, East Mosele*

——I was glad to see a mystery, which h exercised the minds of several spectators at t recent Chelsea Show, cleared up by the lett from Mr. Watson. No one will dispute that t weather-worn rock used by Capt. Symond Jeune was probably the best and most attra tive boulder ever put up in Chelsea. It wi be remembered an exhibit of recent years, which were grassy slopes and a goat, was subject of controversy. To the lay mind a ro garden is a collection of stones arranged neatly as possible to produce a natural effe and primarily to secure the successful culti tion of rare and other alpines. Provided this obtained and no undue proportion of stone used, neither size nor method of placement c be objected to. It is questionable wheth water courses are a necessary adjunct to t rock garden. Judgment cannot fairly be giv to an exhibit that most nearly imitates or is copy of a grassy slope in Switzerland, t shaly sides of the Alps, or the heights of Chi Having one of the largest rock gardens in t country under my care, which at the moment writing show masses of colour, I think I m venture to say, such a garden will always adaptable for alpine growing in England, a considered by experts as a real rock garden— collection of alpines planted at varying heig and suitable aspects, with moisture-loving bog plants at the bottom of the slopes, a rocks of varying size, weighing up to five to which, notwithstanding their large size, do n appear obtrusive. *A. J. Hartless, Kin Walden Bury Gardens.*

Moonock (see p. 323).—This name is a spelled Moonog and Monox and applied Vaccinium Vitis-Idæa and Empetrum nigru as well as to the Cranberry. The last nam is known in Galloway (West of Scotland) the same name. If Mr. Webster will refer *A Dictionary of English Plant Names,* will find the names discussed, and a refere there states that the word may be Celtic, "t the spelling would be monnaghs or monnough In *The Gaelic Names of Plants,* "Muileag word meaning a little frog," is given as Gaelic and Irish for the Cranberry, also "Mon bog or peat berry, Mioriag, the small berr Lightfoot, in *Flora Scotica,* gives the Ga name Mùileag. I should add that I have fou the above *Gaelic Names of Plants* to be always correct. *R. P. Brotherston.*

——This name (*vide* the late S. A. Stewart) applied in the North of Ireland (Belfast) Empetrum nigrum, which is also known Monox Heather. Threlkeld gives it as the Ir name of Vaccinium Vitis-Idæa, and it is appl in Scotland to V. Oxycoccos (see *Dictionary English Plant Names,* pp. 339-40). *Ja Britten.*

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 12 AND 13.—Regular visitors to the rtnightly meetings of the Royal Horticultural ociety were surprised at, and highly delighted ith, the extent and brilliance of the floral isplay provided for them at Vincent Square, n the above dates. The Hall was well filled ith exhibits, the majority of which were of a igh order of merit. An interesting inovation as the extended use of low tables for the isplay of plants and flowers, together with everal arrangements made on the floor itself. weet Peas, Lupins and Irises provided the ulk of the display, and as many of these owers are fragrant, perfume was added to race and colour. Orchids, Roses, alpines and ardy border plants were also well shown. A emarkable feature of the exhibition was the isplay of Saxifraga longifolia made by Sir RIC HAMBRO, and it is doubtful whether so any magnificent spikes on a given number f grandly-grown plants were ever seen at one ime before. There were several interesting ovelties on view, some of which gained awards.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the hair), Messrs. Jas. O'Brien (Hon. Secretary), urney Wilson (Assistant Secretary), Fred. K. ander, C. J. Lucas, Chas. H. Curtis, T. Armtrong, J. E. Shill, H. T. Pitt, E. R. Ashton, antia Ralli, Frederick J. Hanbury, and the on. H. D. McLaren.

FIRST-CLASS CERTIFICATE.

Odontoglossum Goldcrest (*parentage unreorded*), from Messrs. ARMSTRONG AND BROWN, rchidhurst, Tunbridge Wells. The finest of he wonderful set of improvements on the anthotes forms of Odontoglossum raised by essrs. Armstrong and Brown, the parentage of hich cannot be given with certainty. The lant bore a fine spike of thirteen large flowers f fine substance; the pure white ground is losely spotted on the inner two-thirds with right chrome yellow.

AWARDS OF MERIT.

Miltonia William Pitt (*M. Isabel Sander* × *M. Bleuana Reine Elizabeth*), from H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). The plant shown bore its first flower, which showed it to be one of the very finest of hybrid Miltonias. The Committee also gave it a tentative Certificate of Appreciation. The flower is of true Miltonia form, the sepals white with violet markings, the petals deep violet with white outer parts and the lip white with the basal half violet and the crest yellow.

Odontonia Corona var. Rajah (*M. Warscewiczii* × *Odm. Harryanum*), from Messrs. CHARLESWORTH AND CO. A pretty hybrid with branched spikes of very attractive flowers, in which Miltonia Warscewiczii is very evident. The sepals and petals are chocolate-purple with yellowish tips, the showy lip pure white in front and purple at the base.

OTHER EXHIBITS.

R. GERRISH, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell,) showed a plant of Odontoglossum Fabia var. The King (Aglaon × eximium), with a noble spike of flowers heavily blotched with ruby-purple on a white ground. Sir JEREMIAH COLMAN, Bt., Gatton Park (gr. Mr. Collier), sent Odontoglossum citrosmum gattonense, one of the finest forms of the species, with a heavy inflorescence of many wax-like flowers that are blush-white with a light rosy-mauve lip. This exhibitor also showed a superb form of his Dendrobium Gatton Sunray, which gained a First-Class Certificate at the Chelsea show.

Messrs. SANDERS, St. Albans, were awarded a Silver Flora Medal for a very interesting group with Dendrobium Dalhousieanum, D. chrysotosum and other Dendrobiums at the back. In the centre was a finely flowered specimen of Coelogyne albanense, with heavy sprays of Pea-green flowers, having black markings on the lip; Miltonias, Cattleyas and Laelio-Cattleyas were well shown together with a selection of rare species. Messrs. STUART LOW AND CO., Jarvisbrook, Sussex, were awarded a Silver Flora Medal for a very pretty and well-arranged group at the back of which were many elegant sprays of Oncidium pulvinatum with Odontoglossum Hallii and species of Odontioda, Cochlioda Noezliana, Miltonias, Cattleyas and Laelio-Cattleyas, some of the yellow forms of which were specially attractive. The interesting feather-lipped Bulbophyllum barbigerum, the stately B. Lobbii Colossus, with many flowers of large size, and on stems nine inches in height, and other rare Orchids were shown by this firm, which had also forms of Laelio-Cattleya Canhamiana alba and L.-C. Aphrodite.

Messrs. COWAN AND CO., Southgate, were awarded a Silver Flora Medal for a very compact group of specially good hybrids, the chief place being taken by the forms of their Brasso-Laelio-Cattleya Jupiter, by far the best yet shown being the variety Empress, with flowers nearly ten inches across; they are blush-white tinged with mauve, the broad lip being ruby-purple in front. Three good Cypripediums in this exhibit were C. Emerald, C. Alma Gevaert and C. Curtisii Sanderae.

Messrs. ARMSTRONG AND BROWN, Tunbridge Wells, showed the new and fine Laelio-Cattleya Princeps (L.-C. Ville de Bruxelles × C. Mendelii), a noble flower, broad in all its parts, white with deep ruby-crimson front to the lip The flower has all the good qualities of C. Mendelii improved.

Messrs. CHARLESWORTH AND CO. showed Miltonia Venus var. Princess Maude, the largest and one of the best forms yet shown.

Floral Committee.

Present: Mr. H. B. May (in the chair), Sir W. Lawrence, Messrs. W. J. Bean, G. Harrow, J. Heal, H. J. Jones, C. R. Fidler, W. Howe, D. B. Crane, W. P. Thomson, W. B. Gingell, H. V. Warrender, Clarence Elliott, Arthur Turner, Reginald Cory, Andrew Ireland, J. W. Barr, Jas. Hudson, W. B. Cranfield, J. B. Riding, Amos Perry, R. W. Wallace, Chas. E. Pearson, T. Hay, E. A. Bowles, A. G. Jackman, H. R. Darlington, H. D. McLaren, Gerald Loder, and G. Reuthe.

AWARDS OF MERIT.

Yucca gloriosa argentea.—An interesting and effective plant, in which the leaves are deep green with a central irregular base of clear greenish-white. Shown by Messrs. C. SMITH AND CO., Caledonia Nursery, Guernsey.

Lupinus arboreus Light of Lodden.—A beautiful tree Lupin, and one of the most brilliantly coloured forms we have seen. The large spikes carry an abundance of large, deep canary yellow flowers, which are sweetly fragrant. Shown by Mr. A. T. CARLISLE, Lodden Gardens, Twyford.

Pentstemon puniceus.—This is by no means a new plant, but it is not often seen in good condition. The stems are wiry, pale green, and carry the somewhat small flowers in axillary clusters; the leaves are glaucous green, and the flowers bright carmine-scarlet. Shown by Mr. C. T. MUSGRAVE, Hascombe Place, Godalming.

Saxifraga Cotyledon × *caterhamensis.*—An attractive hybrid, producing large, eighteen-inch, pyramidal spikes of blush-white flowers, with the petals freely spotted with crimson on the lower half; this latter colouring gives the spikes a pink tint as viewed from a short distance. Shown by Messrs. INGWERSON AND JONES, Bedwell Plash Farm, Stevenage.

Rhododendron insigne.—A rare species of which we believe there are but few examples in this country. It makes a low, free-flowering bush, and bears neat trusses of campanulata pink flowers. Shown by Lady ABERCONWAY AND Hon. D. MCLAREN, Bodnant, N. Wales.

Rhododendron dichroanthum.—A strikingly attractive Chinese species, said to be quite hardy. The flowers are tubular and wholly of a rich brick-red colour, borne in a loose cluster. The green leaves are ovate-lanceolate and grey beneath.. Shown by Lady ABERCONWAY and Hon. H. D. MCLAREN, Bodnant.

Pyrethrum Harold Robinson.—A strong growing single variety, with large blooms of rich crimson-scarlet colouring and golden centre. Shown by Mr. H. ROBINSON, Burbage, Hinckley.

Iris Thundercloud.—This is a particularly fine, large-flowered, bearded Iris, with bold and practically self-coloured blooms, on spikes, well over a yard high. The colour is deep, rich purplish-blue, with a satiny sheen. We understand this variety was raised by Mr. W. R. Dykes. Shown by the ORPINGTON NURSERIES, Orpington.

Rose Orange Queen.—A free-flowering polyanthus variety, which carries its shapely little double flowers in erect clusters. The colour is orange-salmon, paler, as shown, than in the case of Orange King (which received an award at Chelsea), but extremely like the latter variety in general appearance. Shown by Messrs. KERSBERGER BROS., Boskoop.

OTHER NOVELTIES.

Messrs. BAKERS, Wolverhampton, exhibited two varieties of Aster sub-coeruleus, named respectively Peggy and Kitty; the latter is a very fine form, with large blooms of soft bluish-mauve, but as each stem was supported by a stout white-wood stake, the grace of the plant was lost.

Messrs. DOBBIE AND CO. exhibited a very fine pure white Foxglove, under the name of Marshall's White; it has large flowers and bold spikes. The pretty Olearia semidentata, with large Daisy-like, blue flushed flowers, was shown by Mr. G. W. LODER, Wakehurst Place, Sussex.

GROUPS.

Sweet Peas were splendidly shown by many exhibitors, who had very attractive collections. Near the "New Plant" staging, Messrs. IRELAND AND HITCHCOCK set up a magnificent group. Beautiful pink colour was provided by such sorts as Gloriosa, Tangerine Improved, and Royal Scot, and other brilliant sorts were Hawlmark Pink Improved, Glory, and Mascott's Ingram. The same high quality was continued in many other varieties, particularly in Matchless and Annie Ireland (Silver-gilt Banksian Medal).

Just inside the door Messrs. ALEX. DICKSON AND SONS had a most imposing collection. They massed such sorts as Fairie Queen, Great Scot, Picture, Prince of Orange, Daisybud, and several "1924 varieties," which included Lucifer, deep pink shades; Champagne, pale primrose; and Purple Perfection (Silver-gilt Flora Medal).

Messrs. SUTTON AND SONS had a particularly fascinating display, in which they associated a large number of splendid plants of Clerodendron fallax with the Sweet Peas. The rich crimson flowers and the luxuriant foliage of the Clerodendrons served well to set off the delicate blooms of the Sweet Peas. Messrs. Sutton's chief varieties were Mascott's Helio, Frilled Beauty, Jean Ireland, Chelsea, Doris, Hebe and Tangerine Improved (Silver-gilt Flora Medal).

The central position in the hall was used to great advantage by Messrs. CARTER AND CO., where they arranged a large circular group of great charm and beauty. In the centre there was a graceful Bamboo surrounded by a large quantity of well flowered plants of Antirrhinum Nelrose. Next came big blocks of double-flowered Begonias, Gloxinias, Coleus, Petunia Queen of the Roses, and Calceolarias of several excellent types. Many well disposed stands supported graceful bowls of such Sweet Peas as Hawlmark Pink, Glory, Frilled Lavender, and George Shawyer (Silver-gilt Flora Medal).

Mr. H. J. DAMERUM arranged an attractive collection of Sweet Peas. The colours were very bright and fresh, illustrating desirable varieties and first-class cultivation (Silver Banksian Medal).

Irises, either as special exhibits or in association with other hardy flowers, were freely shown. The ORPINGTON NURSERIES CO. had a great many desirable, tall bearded Irises. A very large stand of the yellow and velvety maroon variety Lovely attracted a deal of admiration. Other varieties of the same type were Opera, Alcazar, Prosper Langier, and Ambigua. Besides these and many more varieties, they had some excellent seedlings and vases of the elegant little Iris Sintenisii (Silver Flora Medal).

Irises were pleasantly associated with many Delphiniums, Oriental Poppies, Verbascums and the beautiful Lupinus Sunshine, by Messrs. **Waterer, Sons and Crisp** (Silver Banksian Medal). A great many excellent seedlings were displayed by Mr. **Amos Perry**, who also had spikes of such bearded Irises as Hakador, Comus, Ianthea, George Yeld, Mrs. H. F. Bowles and Hewodus. They also showed hybrids of the graceful Iris Watsonii, and I. tenax (Silver Flora Medal).

In an attractive miscellaneous collection, Messrs. **Wallace and Co.** included graceful spikes of Iris sibirica and its varieties alba maxima, Emperor and Perry's Blue, with many of the tall bearded type. They also displayed Lilium Willmottiae, L. bulbiferum, Ixiolirion Pallasii, and a small group of the new Rose Orange Queen (Silver Flora Medal).

With such good Irises as Golden Glory, Ossian, Princess Victoria Louise, Porsenna and giant Xiphium varieties, Messrs. **Barr and Sons** showed many excellent Lupins (Silver Banksian Medal). Messrs. **Bunyard and Co.** included Alcazar, Riccardii and Eldorado, amongst their Irises, and also had some magnificent spikes of Eremurus (Silver Banksian Medal).

Sir **Everard Hambro**, Hayes Place, Hayes, Kent (gr. Mr. J. Grandfield), had a memorable collection of Saxifrages. There were many magnificent pot plants of Saxifraga longifolia, raised from seed at Hayes Place, and these bore immense spikes of bloom. S. longifolia cochlearis was also in beautiful bloom. Although not in flower, the pans of S. Boydii and S. diapensioides were of exceptionally high merit (Silver-gilt Banksian Medal).

On the opposite side of the gangway Capt. B. H. B. **Symonds-Jeune** had a very beautiful display of Saxifraga Tumbling Waters, arranged most naturally amongst large boulders. The effect of the unusually long graceful racemes of white flowers was very successful (Silver Banksian Medal). Near by Mr. **Sydney Smith** had a collection of succulent plants, similar to those we admired at Chelsea (Silver Banksian Medal). Messrs. **Dobbie and Co.** arranged many vases of long spurred Aquilegias of a splendid strain.

Beautiful Paeonies, chiefly P. albiflora grandiflora, P. Fire King and P. carnea, were set up by Mr. F. **Gifford** (Silver Banksian Medal). In the annexe Messrs. **Kelway and Co.** also showed herbaceous Paeonies, and besides many single-flowered varieties they had such doubles as Mrs. Baldwin, R. J. Campbell and Princess Mary. Adjoining the Paeonies were some good Delphiniums and choice Pyrethrums in variety (Silver Flora Medal).

Lupins, in similar varieties and of the same excellent strain, as at Chelsea, were displayed in quantity by Mr. G. R. **Downer** (Silver Banksian Medal). Mr. **Clarence Elliott** showed splendid spikes of his scented Lupins (Silver Banksian Medal). Amongst the border flowers arranged by Messrs. B. **Ladhams, Ltd.**, were a goodly quantity of Lychnis Viscaria plena, Mimulus luteus semi-plenus, and many beautiful garden Pinks (Silver Banksian Medal).

Garden Pinks in interesting and useful varieties were also shown by Mr. M. **Prichard**, who also had Kniphofias, Delphiniums, Heucheras, many alpines and Gazania splendens (Silver Banksian Medal). Mr. G. **Reuthe** included many hardy Orchids, principally terrestrial Cypripedium in his collection of hardy plants (Silver Banksian Medal).

Messrs. **Cheal and Co.** had two groups. One contained various shrubs of interest, such as Mitraria coccinea, Andromeda speciosa, and many Rhododendrons and Kalmias, while in the other there were seasonable border flowers, including Linum arboreum, Primula Cockburniana, P. cuspata, and bearded Irises. They also showed Star and Mignon Dahlias in bloom (Silver Flora Medal).

The herbaceous plants exhibited by Messrs. W. H. **Rogers and Son**, included Meconopsis aurantiaca plena, Irises, Primulas, Lupins, Anchusa italica Dropmore variety and Paeonies (Bronze Flora Medal). Messrs. **Carter Page and Co.** arranged a low, informal rockery, appropriately planted (Silver Banksian Medal). The Misses. **Hopkins** also had a pleasantly designed rock garden.

Many Lupins, Delphiniums, Libertia formosa grandiflora, Campanula glomerata, and Pyretheums were arranged by Mr. W. **Wells**, junr. Mr. E. **Scaplehorn** had excellent plants of such hardy species as Saxifraga longifolia, Celmisia holosericea and various Primulas (Bronze Flora Medal). Messrs. R. **Tucker and Sons** included in their exhibit Penstemon rupicola, Sedum pilosum and Cypripedium pubescens (Bronze Flora Medals).

Polyantha Roses were grouped very effectively by Messrs. **Wm. Cutbush and Son.** They had tall standards and bushes of such sorts as Mrs. W. H. Cutbush, Jessie, Juliana, Greta Kluis and their new Orange King (Silver Banksian Medal). The Rev. J. H. **Pemberton** also showed cluster-flowered varieties. The chief were Coral Cluster, Edith Cavell and Havering Rambler (Silver Banksian Medal).

Carnations, as usual, were freely shown in very fresh condition. Mr. C. **Engelmann** had many useful varieties (Silver Banksian Medal). Messrs. **Allwood Bros.** had a large central stand of excellent blooms of Perpetual Malmaison varieties (Silver Flora Medal). Messrs. **Stuart Low and Co.** included their new variety, Arnos Grove, and also staged interesting New Holland plants, Leptospermums, Justicia carnea and Cistus ladaniferus (Silver Banksian Medal).

Mr. H. J. **Jones** arranged a group of very well grown Hydrangeas, similar to those which were greatly admired at Chelsea (Silver Flora Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (chairman), Geo. F. Tinley, S. B. Dicks, G. Reynolds, F. Jordan, A. Bullock, A. Metcalfe, E. Beckett, F. Neal, W. Bates, W. H. Divers, E. A. Bunyard, W. Poupart, and Geo. Kelf.

The Chairman referred to the great loss the Committee has sustained in the death of Mr. Owen Thomas, one of the oldest members, whose opinions were of great value in the Committee's deliberations. Mr. Nix stated that Mr. Thomas was a splendid type of gardener, and a keen judge of a good fruit and vegetable. It was noteworthy that at the recent trial of Leeks in the Wisley Gardens, the variety Royal Favourite, raised by Mr. **Thomas**, stood out conspicuously amongst the very best in the collection. Mr. Thomas, he said, had passed from us full of years and full of honour, and would be greatly missed. The Secretary was instructed to forward a letter of condolence, on behalf of the Committee, to the family.

The only exhibit was a collection of some fifty Melons, shown by Major **Pam**, Wormley Bury, Broxbourne (gr. Mr. F. Streeter), for which a Silver-Gilt Hogg Medal was awarded. The fruits were of moderate size, very clean and well finished. They were staged attractively on stands and dishes, with sprays of Smilax and Amelopsis foliage as decoration. The varieties were Superlative, Royal Favourite, King George, Emerald Gem, Hero of Lockinge, Best of All, Universal and Ringleader.

READING AND DISTRICT GARDENERS'.

The first evening meeting of the summer session was held by the kind permission of S. B. Joel, Esq., at Maiden Erleigh on Monday last. This permission to inspect the gardens and pleasure grounds was greatly appreciated by the members, as was shown by an attendance of one hundred and fifty of the leading professional and amateur gardeners of the surrounding districts. The party was met by Mr. F. Johnson (head gardener) and members of his staff, and an inspection was at once made of the fruit and vegetable quarters where, under glass, splendid crops of Melons were noticed, the fruits being of large size and ready for table. Figs were also promising well. Out of doors the vegetable crops were good considering the lateness of the season, especially Cauliflowers, early Potato and Peas.

Proceeding through the park, the visitor were conducted to the south front of the mansion, and a lovely floral picture was presented to their view. Extensive alterations have been made during the past few years, and much interest was manifested in the large herbaceous borders, the ponds and the views through the glades. Here were seen in perfection Lupinus polyphyllus hybrids, Pyrethrums, Poppies, Cistus (Rock Roses) in variety and two lovely batches of the blue herbaceous Geranium (Crane's bill). The rock gardens claimed special attention, and many of the plants were flowering profusely, such as Saponaria ocymoides, Cerastium tomentosum, and the blue Nepeta. The latter was growing extensively by the side of the miniature ponds and in the borders. The Rhododendrons planted in various parts of the estate were quite a picture in themselves.

At the close of the ramble Mr. A. H. Fulkes, chairman of the Association, voiced the feelings of the members by proposing a hearty vote of thanks to Mr. Joel for his kind permission to hold their meeting at Maiden Erleigh, to Mr. Geo. Laing for arranging such a pleasant evening's ramble, and to Mr. F. Johnson and his staff for so ably conducting the large party round. This was seconded by Mr. M. Goddard and was carried with acclamation. Several new members were elected.

GRAND YORKSHIRE FLOWER SHOW AND GALA.

June 13, 14 and 15.—In the early hours of the opening day of the Yorkshire Gala the City of York was visited by a severe thunderstorm. Fortunately this was of brief duration, and at 6 a.m. the sun was shining brightly; bright weather continued through the morning, but a gale of wind arose as the sun increased in strength and reached its height at about 11 a.m., just when the judges were completing their duties. The wind severely tested the big tent, which, as our readers are aware, is part of the erection used in London on the occasion of the International Exhibition of 1912. Those present who remembered the disastrous wind storm of a score or so of years ago, when, in an hour or two, the York Gala was levelled to the ground, had some fears lest a similar untoward fate should overtake this year's show. Fortunately, the tent stood the test, and soon after noon the force of the wind abated considerably.

We have seen larger shows and a more extensive competition at York than on this occasion but non-competitive displays have rarely been finer, while the quality of the exhibits, taken as a whole, was very high. The leading features were the rock and water gardens groups of hardy flowers, Carnations and Sweet Peas. The classes for fruits showed an improvement upon recent years, but Roses were rather poor owing to the lateness of the season.

It is always a pleasure to attend York Show, as Mr. Hodgson, Mr. Anderson, Mr. Hunt, Mr. Bushell and other officials have the happy knack of making exhibitors, judges and pressmen feel they are heartily welcome, thereby setting an example which the officials of certain other societies would do well to follow. Exhibitors are encouraged and helped; pressmen are welcomed and not regarded as a necessary evil.

At York the exhibitors and Press representatives are invited to lunch with the officials and judges on the opening day. On this occasion Mr. T. G. Hodgson presided, and was supported by the Lord Mayor of York, the Mayor of Ripon, the Mayor of Scarborough, the Dean of York (Dr. Foxley Norris), and representatives of various Yorkshire and other horticultural and floral societies. An excellent lunch was provided, and followed by the toasts of "The King"; "The President, Chairman, Vice-Chairman and Council," proposed by the Dean of York, and responded to by Mr. Hodgson; "Kindred Societies and Other Visiting Friends," proposed by the Lord Mayor of York, and responded to by the Mayors of ipon and Scarborough; "Exhibitors and udges," proposed by A. Rowntree, Esq., and eplied to by Mr. Jas. Hudson, V.M.H.; and Prosperity to the Grand Yorkshire Flower how and Gala."

Regret was expressed that after this year it ill not be possible to hold the York Gala at ootham Park, where it has been held for ixty-one years, and hopes were entertained hat the Gala Council will soon find suitable uarters for the Show of 1924.

Groups.

There were only two competitors in the class or a large group of flowering and foliage plants rranged for effect on a space of 300 square feet. n former years this class provided one of the reat attractions at York Gala, but since the var there has been a reduction of interest in it, otwithstanding that liberal prizes of £20, £15, 12, £10, £8 and £5, respectively, are offered.

First prize was won by Mr. W. A. Holmes, hesterfield, with a group containing plants of ery mixed quality. Some of the Crotons were oor, whereas Dracaenas were capital, and larkias, Hydrangeas, Heaths and Liliums vere used to give floral colour. The general lesign included a bridge of cork, surmounted y Palms and Crotons, and draped with elaginella and Clarkias. Under this a group f salmon Clarkias afforded a bright bit of olouring. The edging to the group was lacking in finish. Second prize was awarded to Mr. M. Petch, Bradford, who used Crotons, nthuriums and Orchids effectively.

Three competitors came forward in the class or a group of plants arranged for effect on a pace 15 feet long by 6 feet wide. Messrs. J. ypher and Sons, Cheltenham, were the winers of the chief award of £10, with a pleasing roup, in which a light arch was the central eature; the arch was furnished with Palms nd small Bamboos, Selaginella, Nandina omestica, and a few Orchids. The groundwork of the group consisted of brightly-oloured Crotons, Palms, Dracaenas, Rex Begonias, Ferns, Nandinas, Cattleyas, Laelio-attleyas, Miltonias Odontoglossums, and Kalanchoe flammea, all arranged in the light nd elegant fashion which characterises the heltenham displays. Mr. W. Holmes obtained he second prize, with a praiseworthy effort; and Mr. T. M. Petch was awarded third prize or a very poor attempt.

In the amateurs' class for a group arranged n a space 12 feet by 6 feet there was but one exhibitor, Joseph Rowntree, Esq., Clifton Lodge, York (gr., Mr. F. Dean), to whom the judges awarded a second prize. Some good examples of Justicia and Haemanthus were included in this group, but the plants were crowded together in such a way as to entirely spoil the effect.

Orchids.

The display of Orchids was well up to the average, but we wish the officials in charge of this section would arrange the exhibits in a certain class together, instead of allowing an exhibitor to place all his plants together, no matter in which class they are entered. In our opinion the present method is not the best, as it does not give the public a fair chance of comparing plants which are in competition with each other.

Messrs. Jas. Cypher and Sons secured the chief awards. They won the first prize of £12 for a table of Orchids, 12 ft. by 5 ft., cut flowers admitted. In this attractive exhibit the Cheltenham firm displayed Oncidium Papilio, Thunia Marshalliae, Cymbidium Lowianum, Miltonias, Odontoglossums, Odontiodas and Laelio-Cattleyas in a pleasing manner with light and graceful foliage plants. J. McCartney, Esq., Bolton (gardener, Mr. C. Potts), won the second prize with a meritorious group in which we noticed good Miltonias, Odontiodas and Cypripedium bellatulum.

For ten specimen Orchids Messrs. J. Cypher and Sons were the premier prize-winners, and they showed capital examples of Dendrobium chrysotoxum, Thunia Marshalliae, Cypripedium Lawrenceanum, Laelia purpurata, L. Pecavia, Laelio-Cattleya Aphrodite, L-C. Aphrodite var. The Queen, L-C. Dominiana, L-C. Fascinator, and L-C. Canhámiana Rosslyn var. Messrs. A. J. Keeling and Son gained second prize and their leading plants were of Cypripedium callosum Sanderae and C. St. Swithin, the latter of C. Stonei parentage.

There were three entrants in the class for six Orchids and here again Messrs. J. Cypher and Sons gained first prize, their selection on this occasion being Miltonia vexillaria leucoglossa, Thunia Marshalliae, Laelo-Cattleya Canhamiana, L-C. Aphrodite, Laelia purpurata and Brasso-Laelio-Cattleya Veitchii magnifica; Messrs. A. J. Keeling and Sons, 2nd, and Mr. J. McCartney, 3rd.

Messrs. A J. Keeling and Sons won first prize for three Orchids, followed, in order, by Messrs. J. Cypher and Sons and Mr. J. McCartney. For one Orchid the chief award was made in favour of Mr. McCartney, who showed a handsome plant of Brasso-Laelio-Cattleya Roumania; Messrs. J. Cypher and Sons, 2nd, with Laelio-Cattleya Wiganiana.

In the amateurs' class for one Orchid Mr. J. Rowntree was successful with an Oncidium.

Greenhouse Plants.

Giant Pelargoniums are no more seen at York, but in their place are classes for various seasonable greenhouse plants.

Begonias were splendidly shown, and Messrs. Blackmore and Langdon's first-prize group was a wonderful demonstration of skilful culture allied to varieties of the very best quality. The Bath firm filled an oval space 12 ft. by 6 ft., on the ground level, and their group included finely-flowered plants of such superb varieties as Lord Lambourne, B. McDougall, Mrs. J. Thorton white; Princess Victoria Louise, pink; and the exquisite Hilda Langdon.

Mr. Joseph Rowntree and Mr. Arnold Rowntree, Chalfonts, York (gardener, Mr. J. Armes), competed in the class for a group of tuberous and other Begonias, arranged on a space not exceeding 100 square feet. The former won first prize with an interesting exhibit in which a few tuberous-rooted Begonias were associated with plants of B. Lloydii, B. Haageana, B. coccinea, B. semperflorens, B. Weltoniensis, B. Pres. Carnot, B. corallina, varieties of B. Rex, and several other kinds. Mr. A. Rowntree confined his attention chiefly to tuberous-rooted and Rex varieties, but his flat arrangement was not pleasing. S. Leetham, Esq., The Mount, York, excelled for eight plants of tuberous-rooted Begonias and Mr. J. W. Clarke, Skelton Street, Clifton, won second prize.

Dr. Macdonald, Ouse Lea, Clifton, York (gardener, Mr. E. Bennett), was the only exhibitor in the class for a group of Calceolarias, and he fully deserved the first prize awarded him. He showed good examples of a fine strain of herbaceous Calceolarias with a background of C. Clibrani.

Mr .G. Palmer won first prize for eight Calceolarias with very well grown plants of a fine strain; Dr. Macdonald won the second and Mr. J. Rowntree the third prize. Gloxinias were not shown so freely as usual. There was but one group of these plants, from Messrs. Padgett and Watson, Low Ousegate, York, to whom the first prize was awarded. Mr. J. Rowntree was the most successful exhibitor of eight plants of Gloxinias.

Messrs. E. T. Theakstone and Son, Hull Road, York, were awarded first prize for their group of Carnations, in pots; the plants were of various sizes and carried blooms of fair quality.

Rock and Water Gardens.

Two exhibitors came forward in the class for a rock garden to occupy a space 30 feet by 12 feet. The class specification permitted the use of water, but did not allow competitors to make any excavations; in short, a low rock garden was desired. The most successful exhibitor was Mr. J. Winn, 18, Moorgate, York, who disposed his rocks in lowly fashion, with an irregular pathway running more or less through the centre of the arrangement. The design was one easily copied or adapted by those with limited space, while the plants used to furnish the garden were not of a kind likely to discourage a novice in the art of cultivating alpines, and they were disposed in fairly long drifts. Prominent subjects were Viola species, Ramondia pyrenaica, various dwarf Primulas, Saxifragas, Dianthi, Sedums and small Conifers. The second prize was awarded to Mr. R. V. Rogers, Pickering, whose planting erred on the side of sparseness.

Another class provided for "An ornamental rock-work, decorated with hardy plants and flowers and other background; water may be introduced at the discretion of the exhibitor; cut Nymphaea only allowed; arranged on the ground—no digging permitted—to occupy a space not exceeding 30 feet by 12 feet." We confess to some sense of disappointment with the results of this competition. Mr. P. Gardner, Ilkley, won the first prize; and Mr. S. Pickering, York, the second. The former had a restrained design neatly planted. In Mr. Pickering's exhibit we were most interested in the groups of Sempervivums.

Hardy Flowers.

Messrs. Blackmore and Langdon, Twerton-on-Avon, Bath, displayed Delphiniums superbly in the class for a group of those flowers. The space allotted was 150 square feet. There was no overcrowding of the magnificent spikes, and probably no other competitive exhibit in the show was so greatly admired as this one. The varieties Yvette Guilbert, General Haig, Mrs. Christie Miller, and Millicent Blackmore, were represented, among others, by some of the finest spikes and flowers ever seen. Needless to state, although there was no other exhibitor, Messrs. Blackmore and Langdon received the premier award.

Considering the fine quality of the Sweet Peas now being staged by the specialists, it was unfortunate that only one exhibitor came forward in the class for a collection of these flowers arranged on a space of 100 square feet. The first prize was awarded to Messrs. E. W. King and Co., Coggeshall, for a bold arrangement in which stands of various sizes, and baskets, were used to display the flowers. The most attractive varieties were Austin Frederick Improved, Gladys, Giant Attraction, and George Shawyer. Judging was by points, and the maxima were 60 points for quality of bloom; 20 for harmonious blending of colour; and 20 for artistic arrangement and general effect; the points awarded were 35, 12 and 10, respectively.

First prize for a collection of hardy perennial flowers, arranged on a space not exceeding 350 square feet, was won by Messrs. Harkness and Sons, who staged a great variety of subjects, but Lupins, Delphiniums, Poppies, Irises, Pyrethrums, and Verbascums figured prominently. Out of a possible 100 points they obtained 74. Messrs. Gibson and Co. gained the second prize with 60 points. Messrs. Harkness and Gibson won prizes in order, as named, for a group of Lupins, and both made very attractive exhibits of these popular flowers. In a smaller class for hardy flowers than the one already referred to, Messrs. Longster and Sons beat Messrs. Harkness and Sons, and the same firm was successful in the classes for two dozen and one dozen bunches of hardy flowers; Mr. R. Kettlewell being second prize winner in each class.

Messrs. Harkness and Sons, Bedale, showed the best group of Poppies, and made a gorgeous display of finely grown flowers of varieties of Papaver orientale, in many shades of colour, with an edging of Iceland Poppies; 2nd Messrs. G. Gibson and Co., Leeming Bar, Bedale.

Roses.

In certain seasons, when the weather has been more kind than in this, Roses are shown in large numbers and excellent quality at York, but the weather of the past month has not favoured Roses, hence the display was neither extensive nor good.

Mr. Elisha J. Hicks, Twyford, was the most successful competitor in this section, winning first prizes for seventy-two blooms, for forty-eight blooms, for two dozen distinct varieties, for eighteen blooms, and for a decorated table of Roses. Some of his best flowers were of Stanley Baldwin, Mrs. Winnett, Diadem, America, Mrs. C. Sawday, Capt. Kilbee Stuart, Ophelia, Margaret Horton, Daisy and Columbia.

Mr. George Prince, Oxford, had the best thirty-six blooms, the best dozen blooms, and the best collection of Roses in pots or cut, and in this class he made a fine display with Red Austrian Copper, Harrisoni, Irish Elegance, and Irish Fireflame. Mr. Prince was second to Mr. Hicks in several classes, and in other classes the positions were reversed.

Floral Designs.

The floral designs usually provide an interesting and attractive feature at York, and on this occasion the section was well up to the usual standard of excellence.

Mr. Elisha J. Hicks had the best epergne suitable for a dining table, and his arrangement was of Mdme. Butterfly Roses; 2nd, Mr. M. Stather, with pink Carnations and sprays of Thalictrum dipterocarpum. Mr. F. H. Ward, York, led in the class for a bowl of cut flowers, Orchids excluded, with crimson and pink Carnations. He also won first prize in the class for a bride's bouquet, with a pleasing design in Cattleya Mossiae Reineckiana and Odontoglossum crispum; 2nd, Messrs. Padgett and Watson, with Sweet Peas and Odontoglossums.

Mr. M. Stather, Cottingham, beat Mr. Ward in the class for a bridesmaid's bouquet, with a dainty design of pink Carnations and Thalictrum spikes; Mr. Ward used Cattleyas and Odontoglossums, but in this instance made rather too free use of Asparagus plumosus. However, Mr. Ward was again to the fore with a pair of ball bouquets, using pink Carnations and mauve Cattleyas respectively; 2nd, Messrs. Padgett and Watson.

For a pair of hand bouquets, Mr. Ward won first prize with designs executed in mauve Cattleyas and Odontoglossums, and yellow Carnations and Odontoglossums; 2nd, Messrs. Padgett and Watson. Mr. Ward also led in the class for a single bouquet with a rich arrangement in which highly coloured Odontoglossums and Odontiodas were used.

Mr. Elisha Hicks showed the best bowl of Roses, and again used the lovely Mdme. Butterfly; 2nd, Mr. M. Stather. Mr. M. Stather secured the premier position in the class for a hand basket of cut flowers, with a bold and brilliant design in which the golden spathes of Richardia Pentlondii were associated with Eryngium alpinum and Japanese Maple; 2nd, Mr. Ward. In another class for a hand basket of flowers Mr. Ward and M. Stather were placed first and second respectively.

Fruits.

About a dozen and a half classes were provided for fruits and vegetables, and in the principal one, for a decorated table of ripe fruit, Messrs. Padgett and Watson put up the only exhibit and were awarded the first prize. Fourteen dishes of any kind of fruit, English or foreign, were required. The display, decorated with Sweet Peas, included Pineapples, Melons, black and white Grapes (the latter cut far too soon), Peaches, Nectarines and Strawberries, all without labels.

J. Brennand, Esq., Baldersby Park, Thirsk (gr. Mr. J. Hathaway), won first prize for a collection of eight kinds of fruits, with a good exhibit of Black Hamburgh and Foster's Seedling Grapes, Royal Sovereign Strawberries, Bigarreau Cherries, Goliath Plums, Early Rivers Nectarines, Brown Turkey Figs, Irish Peach Apples, Jordan's White Melon and Peregrine Peaches; H. Craven, Esq., The Briery, Sunderland (gr. Mr. W. N. Hague), 2nd.

Mr. J. Brennand and Mr. H. Craven won prizes in the order of mention for a collection of six kinds of fruits, and the former was successful in the class for four kinds, showing Fosters' Seedling Grapes, Hero of Lockinge Melon, Peregrine Peaches, and Early Rivers' Nectarines.

In the class for a dish of Peaches Mr. Brennand led with Peregrine in fine condition; 2nd, the Marquis of Ripon, Studley Royal (gr., Mr. G. E. Thomas), with Hale's Early. Mr. Brennand was equally successful in the class for Nectarines, with Cardinal; 2nd, Mr. H. Craven, with Lord Napier. Mr. Brennand was the most successful exhibitor of Black Hamburgh Grapes, and was followed by the Marquis of Ripon and Mr. H. Craven. The latter had the best White Grapes.

In the Melon classes Mr. Brennand led for a green-fleshed and for a white-fleshed variety, while Mr. H. Craven showed the best scarlet-fleshed variety—Blenheim Orange. Mr. Brennand and Mr. Craven won first and second prizes, as named, for Strawberries, and both exhibited the variety King George.

Medal Awards.

The non-competitive exhibits were numerous, attractive and interesting, and formed a large part of the show; the following is the list of awards made to them :—

Premier Prize.—Offered by the President, the Right Hon. Florence, the Lady Nunburnholme, for the best exhibit in the show: to Messrs. Robt. Bolton and Son, for Sweet Peas. For quality of flowers, beauty of colour and arrangement, this was one of the finest exhibits of Sweet Peas we have seen.

Large Gold Medal.—To Messrs. E. Webb and Sons, Stourbridge, for greenhouse plants; to Messrs. S. Broadhead and Son, Sunderland, for rock and water garden; to Messrs. J. Peed and Son, Norwood, for Caladiums and Hydrangeas; to Messrs. Robert Bolton and Son, Halstead, for Sweet Peas; to Messrs. Mansell and Hatcher, Rawdon, Leeds, for Orchids; to Messrs. Dobbie and Co., Edinburgh, for Sweet Peas; and to Messrs. Backhouse and Son, York, for rock garden and formal Iris garden.

Gold Medal.—To Messrs. Toogood and Sons, Southampton, for vegetables and flowers; to Mr. W. Wells, junr., Merstham, for hardy flowers; to Mr. C. Engelmann, Saffron Walden, for Carnations; to the Donard Nursery Co., Newcastle, Co. Down, for rare trees and shrubs; to Mr. R. V. Roger, Pickering, for hardy flowers, and to Mr. Jas. Douglas, Great Bookham, for border Carnations.

Silver Medal.—To Messrs. R. H. Bath, Wisbech, for hardy flowers; to Messrs. Maxwell and Beale, Broadstone, for alpine plants; to Messrs. Reamsbottom, West Drayton, for Anemones; to Mr. G. Burch, Peterborough, for Roses; to Messrs. W. Simpson and Sons, Birmingham, for Antirrhinums; to Mr. T. M. Petch, Bradford, for Pansies and Violas; to Mr. H. N. Ellison, West Bromwich, for Ferns and Cacti; to Messrs. Bakers, Wolverhampton, for hardy flowers and model rock garden; to Mr. G. W. Miller, Wisbech, for hardy flowers; to Messrs. Jarman and Co., Chard, for Sweet Sultans, etc.; and to Miss E. Fisher, South Kensington, for paintings.

THE WEATHER.

THE WEATHER FOR MAY.

May was mainly an exceptionally stormy month, with west-north-westerly winds, except towards its close, when northerly to easterly winds were experienced. Notwithstanding a few quiet days during the first week, the mean velocity of the wind was greater than in any previous May since the Anemograph Station was erected at Marshside, Southport, in 1897. Under such conditions, the daytime temperatures were extremely low, while on the other hand frost was prevented in the night, and the daily range of temperature was the smallest value for May in half a century's observations. The month was slightly dull, and not dry, though the rainfall was considerably less than that recorded at stations a little distance inland. The mean temperature was 48°, or 3¼° below the average. There were 197 hours of bright sunshine, or 13 fewer than usual. Rain fell on 19 days, or 5 more than the normal number; and the total amount was 2.48 inches, or an excess of 0.35 inch. Ozone was remarkably abundant. Moderate gales occurred on three days, and hail fell on four, but frost in the open was restricted to two nights, and the ground was nearly as warm as usual. The subsoil water-level also was practically normal. A slight thunderstorm occurred on the night of the 12th. Visibility was exceptionally good. *Joseph Baxendell, The Fernley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

May opened well with bright, mild days, but on the 9th the temperature fell sharply and remained abnormally low for the remainder of the month. The rainfall was slightly below the average, being 1.81 inch for 13 days, against a normal of 2.09 inches for 14 days; the 14th was the wettest day, with a fall of 0.28 inch. Of bright sunshine, there was an aggregate of 142.2 hours, giving an average of 4.5 hours per d and a percentage of 28—a marked deficiency from t normal for May of 35 per cent.; the brightest day w the 7th, with 13.4 hours. Barometric pressure va from a highest of 30.37 on the 29th to a lowest 29.18 on the 11th, and showed a mean of 29.86. T mean temperature was 47°— normal 49.4°—with a m maximum of 55° and a mean minimum of 39°. T highest maximum was 66° on the 4th, and the lowe minimum 31° on the 10th, this last being the on night on which the temperature fell below freezi point. On the grass the mean minimum was 3 with a lowest of 26° on the 10th; there were nights of ground frost. At 1 ft. deep the soil te perature showed considerable fluctuations, rising fr 46° to 50° during the first 6 days of the mon falling to 46° again in the three following days a finally rising to 49°. Hail fell on the 14th. On t 15th there was a sharp thunderstorm, and thund was heard on two other days. The winds w chiefly from the south and west, although towar the end of the month northerly winds prevailed. The was a gale on the 11th. *John Davidson, Director Studies, Training College Gardens, Mayfield, Dund*

ANSWERS TO CORRESPONDENTS.

Diseased Dendrobiums: *T. B. A.* As y state that the plants are in the best possib condition at the roots, and making vigoro growth, their unsatisfactory condition mu be attributed to a severe check in their re ing season, due to a cold, damp atmosphe or some other cause. If the plants we taken direct from a warm glasshouse to t dwelling-house, this might be the cause the trouble, especially if they were plac in a draughty position. The use of sulphu tobacco powder, soot or lime will not be much assistance, as apparently the disea is in the tissue of the pseudo-bulbs, but slight dusting of sulphur might be tried a remedy The only course that we wou suggest is to propagate clean, healthy sto from aerial growths of the choicer hybri whenever opportunity occurs, discarding t diseased plants as speedily as possible. W congratulate you on having plants of Vaa caerulea forty years old which flower well their respective season; such specimens a undoubtedly a testimony of successful cult vation.

Greenhouse Plants for Cut Bloo Between October and March: *A. S.* T following six subjects should provide a supp of flowers during the period mentione Bouvardias, Carnations, Freesias, Cyclamen Ixias and Richardia africana, while vario Narcissi, including Paper White for Chris mas, Roman Hyacinths and Tulips furnis cut blooms over a long period.

Names of Plants: *W. D. B.* 1, Cotoneast moupinense; 2, C. Henryana; 3, Coroki Cotoneaster; 4 and 5, too small to identify 6, Solanum jasminoides.—*F. P. D.* Spec mens very poorly and badly packed. Th tall, white-flowered plant is Veronica genti noides, and a second one is a Geranium, bu the third was unrecognisable.—*F. B.* W cannot undertake to name florists' flowers send specimens to a Rose grower.—*A Twent Years' Reader.* Prunus lusitanica (Portuga Laurel); the cause of the tips of the branche dying is drought at the roots.

Rateable Value of Nursery: *Tomato.* Th Schedule A Assessment should be on the basi of annual value. As nurseries are so seldo let, the figure can only be arrived at b estimating the present capital value of th greenhouses, and then by taking a percentag on this value to arrive at a rental that th business could afford to pay. This percentage should not be higher than 5 per cent and to this should be added the annual valu of the land. If the pit is on brick foundations, then this should be included, but if o a wooden framework excluded. Withou expressing a definite opinion, as the nurser has not been inspected, but assuming th greenhouses are in good condition, a reasonable assessment for your property woul appear to be, gross £54, net £45.

Communications Received.—C. W. L.—P. R. I.—L. Y.—W. A. C.—Mrs. I.—H. D.—Thirty Years Reader—A. Z.—W. W., Berks.—D. H., Bute—R. N.—H. A.—H. J. B.—G. J., thanks for 2s. for R.G.O.F. box—H. W.—W. W., Berks.—P. L. A.—F. A.—F. E.

THE
Gardeners' Chronicle
No. 1904.—*SATURDAY. JUNE* 23, 1923.

CONTENTS.

Books, notices of—
  Handbook of the Larger British Fungi 354
Dahlias, dwarf, for bedding 347
Erigeron mucronatum 356
Exchange, rate of, in France 345
Fertilisers, prices of .. 345
Finger-and-toe disease at Droitwich .. 355
Forst Rose show .. 345
French horticultural congress at Grenoble 345
Fruit culture in Sweden 355
"Gardener's Chronicle" seventy-five years ago 346
Indoor plants—
  Browallia viscosa .. 349
  Celsia Arcturus .. 349
Germany, gardening news from 346
Gnat bites, lotions for .. 346
Ireland, notes from .. 347
Iris lutescens—Stabellae 349
Iris sibirica 349
Ixiolirion 349
Lilacs, hybrid 352
Matthews, Mr. Edward 346
Medals for fruit exhibits 346
Mice, a bait for .. 356
Further confessions of a novice 353
Mosaic disease .. 345
Obituary—
  Callier, Eugêne .. 358
  Challis, Thomas .. 358
  Jefferies, John E. .. 358
  Priest, William .. 358
Orchid notes and gleanings 347
Potato skin spot and corky scab 355
New Jersey, notes from 354
Plant names, puzzles in 356
Plants new or noteworthy—
  Rhododendron insigne 351
Prices Committee, interim report of the .. 345
Rock garden, what is a ? 356
St. Cuthbert's Cole .. 356
Societies—
  Chamber of Horticulture 357
  Manchester and N. of England Orchid .. 356
  Société Nationale d'Horticulture de France 356
Spinach, summer .. 355
Trees and shrubs .. 352
Trees for street planting 352
Violas 354
Wages, gardeners' .. 356
Ward's, Mr. F. Kingdon, plant-collecting expedition in Asia .. 350

ILLUSTRATIONS.

Chiang-Ka river, the 350
Iris Thundercloud 349
Matthews, Mr. Edward, portrait of 346
Rhododendron insigne 351
Rose Mrs. Tresham Gilbey 347
Saxifraga longifolia 353

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.5°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 20, 10 a.m.: Bar., 30.3; temp., 57°. Weather—Dull.

Mosaic Disease. The disease, or group of diseases, known as Mosaic disease, affects large numbers of different plants. More than one hundred species are known to be susceptible to Mosaic disease, and of this number many are food-producing plants of great economic importance. One of the earliest known instances of Mosaic disease is that which occurs on Tomatos, although we believe it is correct to say that the most curious feature of this disease was not discovered until after investigations had been made on the nature of Mosaic disease of Tobacco and Potato. The peculiarity of Mosaic disease consists in the fact that although no micro-organism can be discovered in the tissues of plants affected with the disease, it is nevertheless infectious. The juice which exudes from a wounded plant carries the "virus" of the disease, and if inoculated into a healthy plant evokes speedily the characteristic symptoms. A careful investigation of Mosaic disease of Tomatos carried out at the Experimental and Research Station, Turner's Hill, Cheshunt, Herts.,* has shown that the symptoms of the disease are various. The foliage may be mottled with yellow spots, or the leaf margins may be distorted with or without a blistering of the surface, or the leaves may become tendril-like, while the weight and quality of the fruits are reduced in all affected plants. The infectiousness of the disease was demonstrated by extracting the juice from crushed Tomato plants and inoculating drops of it by means of needle-pricks into healthy plants. In every case the disease made its appearance in the hitherto healthy Tomatos. After filtering through a Chamberland filter—which is impervious to micro-organisms generally—the juice retained its power of infection, albeit to a somewhat impaired degree. Five out of twelve plants infected with filtered juice "took" the disease. In the course of these researches the interesting discovery was made that Mosaic disease carriers may exist among Tomato plants. Of forty healthy Tomato plants (Ailsa Craig) only thirty-seven showed symptoms of Mosaic disease after inoculation by means of the "virus." But the three immune were immune in appearance only. Although they showed exteriorly no sign of Mosaic, their juices were infected as was proved by their serving to communicate the disease when inoculated into other healthy Tomato plants. Thus, as in human maladies—diphtheria, for example– a carrier may distribute the disease without showing signs of suffering from it, so it is in the plant world with Mosaic disease. Experiments have also shown that in the ordinary course of operations in Tomato houses infection is bound to occur if diseased plants are present. Thus it has been proved that the workers engaged in stopping the plants—by pinching off the terminal shoot—pass on the malady from diseased to healthy plants. The pruning knife or the fingers serve to inoculate healthy plants and hence it is important that any manifestly affected by Mosaic disease should be destroyed—at all events if they are observed early in the season. If noted only later the mischief is already done; things must then be left to take their course and the grower must, perforce, be content with the smaller yield given by diseased plants. It has also been demonstrated experimentally that aphis and white fly transmit the disease from mosaiced to healthy plants—an additional reason for keeping down these pests. Mosaic disease of the Tomato is not confined to that plant. It may be communicated to various Solanaceous plants—Petunia, Tobacco, Black Nightshade and Bitter Sweet and from them it may be passed back to the Tomato. Whether the Potato, which has its own Mosaic disease, is also susceptible to that of the Tomato is apparently not yet certain. In any case, the desirability of excluding from the neighbourhood of Tomato houses all suspected weeds and plants is manifest. A Mosaic disease also attacks the Cucumber. In one form it causes yellow mottling of the leaves with little, if any, distortion, and causes but little loss. In another form it brings about mottling, wrinkling and blistering of the foliage and a dwarfing of the plant. Plants so attacked may go blind, that is, the growing point may fail to develop. Cucumbers may appear to grow out of the disease, producing after a time normal foliage, but their juices, as shown by cross-inoculation, are still virulent. In the case of the Cucumber, it is not known whether other plants are susceptible to its Mosaic disease, and it is suspected that the disease is transmitted in the seed—a contingency which does not appear to occur in the case of Mosaic of Tomato. Meticulous cleanliness on the part of workers, which can only be carried out if they are aware of the facts; cleanliness with respect to insect pests and neighbouring weeds; and vigilance in detecting an outbreak are evidently means of checking the spread of Mosaic disease.

"Clay" Cup for Roses.—The "Clay" Cup for scented Roses will be offered for competition at the Royal Horticultural Society's meeting of the 26th inst. The Rose must be of good form and colour, not in commerce, and possess the true old Rose scent.

French Horticultural Congress at Grenoble.—The fifteenth Congress of the National Federation of Horticultural Syndicates in France will be held at Grenoble from July 2 to July 4. Many visitors are expected, and it is anticipated that the town will be crowded to its utmost capacity. On the preceding Saturday a reception is being held at Lyons by the local Chamber of Horticulture for the visitors to the Congress, and excursions have been arranged for them to places of interest in the district. The agenda of the Congress is a crowded one, and a banquet and ball terminate the third day's proceedings; further excursions are arranged to fill up every available spare moment, and continue for some days after the Congress proper is finished, the programme closing with a *Dîner d'Adieu.* As a normal time for the starting of the day's sight-seeing appears to be, according to the time-tables given, 6.45 a.m., those taking part in the whole week's festivities will not feel that they have wasted any time. For the organisers the proceedings will probably be a little strenuous.

Rate of Exchange in France.—The fluctuation of the value of the franc has, it would appear from statements made in the French horticultural Press, led Dutch bulb growers, when quoting prices to French purchasers, to quote in their own currency, or even in English sterling, fearing that prices quoted in francs may realise, when payment is tendered some weeks later, much less than was anticipated. The French dealers are unwilling to accept such quotations, as they would have to bear the whole loss in case of a depreciation of their own currency; but it is equally unfair that the Dutch bulb-grower should suffer. It is one of the many difficult problems raised by a see-saw currency.

Prices Committee: Interim Report on Fruit and Vegetables.—The Departmental Committee on the Distribution and Prices of Agricultural produce has signed a unanimous interim report on fruit and vegetables, and this report has been presented to the Minister of Agriculture. It is based upon exhaustive evidence and covers such subjects as the methods and costs of distribution of fruit and vegetables, transport rates and facilities, the co-operative movement among producers, the grading and packing of produce for market, the disposal of surplus produce, and the function of the wholesale markets in the general distributive system. The members of the Committee are: The Marquess of Linlithgow (Chairman), Mr. Percy A. Hurd (Vice-Chairman), Sir Basil Mayhew, Mr. A. W. Ashby, Mr. Ernest R. Debenham, Dr. Charles M. Douglas, Mr. Rowland R. Robbins, Mr. R. J. Thompson and Mrs. Wintringham.

Forst Rose Show.—The German Rose Society and some other societies are joining forces to produce a Rose Show, to be held at Forst, Lausitz (Germany), from July 7 to July 9. The site of the show will be the Wehrinsel Park, where a similar function took place in 1913; the Rose garden already contains some 30,000 permanent trees, and about 6,000 new ones, from the best firms, have been sent for the exhibition. These have been planted well in advance of the date, so as to be established by the time the exhibition opens.

Fertilisers Cheaper.—According to the Agricultural Market Report of the Ministry of Agriculture, most kinds of fertilisers have declined in price during the past twelve months. Basic slag has gradually become cheaper since the beginning of last year, representing a fall of about 8s. per ton for the twenty per cent. grade, whilst the thirty per cent. grade shows a reduction of about 15s. per ton. Steamed bone flour is also cheaper, but bone meal increased slightly in value during the past three months. The amount of basic slag imported into the country since the beginning of 1923 was 36,700 tons. The imports of phosphates of lime and rock phosphates have also been heavy this year. Nitrate of soda is appreciably cheaper than last year, the fall per ton being nearly £3. French kainit, with 14 per cent. of potash, was between £3 and £3 7s. per ton during the first five months of 1922, but this year the price dropped to £2 2s. to £2 7s. per ton. Kainit which has a lesser percentage of potash shows a similar decrease. Muriate and sulphate of potash are also obtainable at a much lower price. It is interesting to note that kainit is much cheaper than it was before the war.

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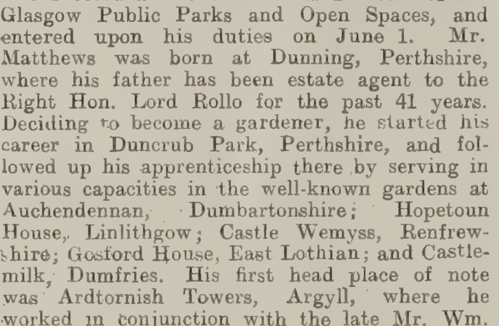
* *Eighth Annual Report,* 1922, *of the Experimental Research Station.* Nursery and Market Garden Industries Development Society, Ltd. The Cheshunt Press, 1923.

National Chrysanthemum Society.—The annual show of this old floricultural society will be held on November 1, 2, in the R.H.S. Hall, Vincent Square, Westminster. The schedule, which is before us, includes forty-five classes, divided into various sections, four of which provide for open competition. The two remaining sections are restricted to amateurs, one of which is for growers who employ no paid assistance. The Affiliated Societes' class, for twelve vases of cut Chrysanthemums, has been altered to require four sections of Chrysanthemums, instead of four specified types, so that greater scope is offered exhibitors. The prizes are of the same substantial value as before, and the first prize includes a valuable challenge trophy. Liberal prizes are offered in the open classes from which traders are excluded, the chief of which is the William Wells Memorial Class for thirty-six Japanese blooms in twelve varieties. The George Monro Challenge Cup for twelve vases of large single varieties is open to all. A special prize is offered by the President, Sir Jeremiah Colman, Bart., in the amateurs' section, for a floral decoration suitable for a hall, hall table, or sideboard, and another interesting class is for a basket of Chrysanthemums shown by an amateur, in which Mr. Jeremiah Colman offers three prizes. A gold medal is again offered by Messrs. Clay and Son for the best non-competitive exhibit in the show. Copies of the schedule may be had on application to the secretary, Mr. Chas. H. Curtis, 5, Tavistock Street, Covent Garden, W.C.2.

Lotions for the Prevention of Gnat and Mosquito Bites.—Gnats and mosquitos are especially troublesome to garden workers, as they seem to harbour amongst vegetation, and especially grass, often causing great annoyance by their stings. The following lotions for the prevention of bites by these insects are recommended by the *Pharmaceutical Journal and Pharmacist*: Quinine-sulphate, 1 gm; 95 per cent. alcohol, 32 gms.; water, 11 gms. This lotion is applied all over the exposed parts; it dries quickly and is highly spoken of by those working in mosquito-infested districts. The second lotion recommended is a 1 in 16 solution of magnesium sulphate; for mosquitos 1 in 3 solution is necessary. This solution leaves a fine powder on the surface of the skin to which it is applied, and it is stated insects will not attack it. This solution is also said to subdue the inflammation of a gnat bite and heal it. Another lotion recommended is compounded of oil of citronella, 1 oz.; spirit of camphor, 1 oz.; and oil of cedar, $\frac{1}{4}$ oz. Other lotions recommended are (a) castor oil, alcohol, oil of lavender, 1 oz. of each; (b) 1 fl. oz. eucalyptol, $\frac{1}{2}$ fl. oz. oil of cedar; 1 fl. dr. glycerin; 5 fl. oz.; tincture of insect powder (1 in 5) with camphor water added by degrees until the faint opalescence is permanent.

Gardening News from Germany.—The annual meeting of the German Gardeners' Company is to take place at Wörlitz, near Dessau, from June 22 to June 26, and the German Landscape Gardeners' Association is also to meet at the same place on Sunday, the 24th. The National Society of German Gardencraft is to hold a "Gardeners' Day" in Erfurt on August 5, to take the form of a Congress to discuss the chief subjects connected with horticulture. The Reutlingen Pomological Institute, after sixty-three years of invaluable work, has been obliged, by the stress of present circumstances, to close its doors. This is a great blow to all interested in horticulture and pomology, as the Reutlingen Institute was in the forefront in promoting the progress of fruit culture. The buildings of the Institute are to be taken over for industrial purposes, but the fruit nurseries at Schlachters, near Lindau, have been taken on lease by Herr F. Lucas, therefore it may be hoped that at least not all the work of the past will be wasted.

Mr. Edward Matthews.—We have pleasure in publishing the portrait of Mr. Edward Matthews, who succeeded Mr. Whitton as Director of the Glasgow Public Parks and Open Spaces, and entered upon his duties on June 1. Mr. Matthews was born at Dunning, Perthshire, where his father has been estate agent to the Right Hon. Lord Rollo for the past 41 years. Deciding to become a gardener, he started his career in Duncrub Park, Perthshire, and followed up his apprenticeship there by serving in various capacities in the well-known gardens at Auchendennan, Dumbartonshire; Hopetoun House, Linlithgow; Castle Wemyss, Renfrewshire; Gosford House, East Lothian; and Castlemilk, Dumfries. His first head place of note was Ardtornish Towers, Argyll, where he worked in conjunction with the late Mr. Wm. Goldring, of Kew, the famous landscape gardener. On leaving Ardtornish, Mr. Matthews became manager to Messrs. G. Gibson and Co., the hardy plant specialists in Yorkshire, and thereafter was appointed to take charge of the gardens at Newstead Abbey, Nottinghamshire. On the death of the owner of Newstead, Mr. Matthews was appointed to take charge of the Duke of Wellington's Gardens at Strathfieldsaye, where he turned his attention to the cultivation of fruits and vegetables in large quantities. He found time, however, to exhibit at the shows of the Royal Horticultural Society and other societies in the South of England. He kept the gardens at Strathfieldsaye up to a high standard for nearly five years before being appointed gardener-bailiff to the Dowager Countess of Wilton, Langwades Hall, Suffolk, but he was only there a short time before he was appointed by the Corporation of Glasgow as assistant to Mr. James Whitton, V.M.H. On Mr. Whitton's retirement at the end of May last, Mr. Matthews was unanimously appointed his successor. The Glasgow Corporation is a very progressive body so far as horticulture is concerned, and Mr. Matthews will have under his control over thirty public parks, including the Botanic Gardens, and about one hundred open spaces, in addition to which there is Ardgoil with its 14,700 acres, the gift of Lord Rowallan, situated about 35 miles from the city. The number of men employed in the Glasgow parks is about 1,250, and during the past two years the parks have found work for about 1,000 unemployed men. Although a very busy man, Mr. Matthews continues to interest himself in the affairs of the Glasgow Horticultural Society, being a director of that body.



MR. EDWARD MATTHEWS, THE NEW DIRECTOR OF THE GLASGOW PARKS.

Medals for Fruit.—Messrs. George Bunyard and Co., Ltd., of Maidstone, have presented medals to the Royal Horticultural Society which will be offered for award to amateurs for exhibits of Strawberries on June 26, of Cherries on July 10, of Gooseberries, Peaches and Nectarines on July 24, and of Plums and Apricots on August 8. The medals will be either of silver or silver-gilt.

Appointments for the Ensuing Week.—Tuesday, June 26; Royal Oxfordshire Horticultural Society's Commemoration show; Royal Horticultural Society's Committees meet (two days); Bournemouth Horticultural Society's show (two days). Wednesday, June 27: Mitcham, Tooting and District Horticultural Society's meeting. Thursday, June 28: National Rose Society's summer show in the Royal Botanic Gardens, Regent's Park; Royal Botanic Society's meeting; Gardeners' Royal Benevolent Institution's festival dinner at Hotel Victoria. Saturday, June 30: Windsor Rose Society's show; Muswell Hill Horticultural Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Horticultural Exhibition at Chiswick.* A pouring rain and a sunless sky are not favourable to horticultural exhibitions under canvas; and therefore the meeting at Chiswick on Saturday last was a failure. Nevertheless, although the beating of the raindrops on the tents almost drowned the sound of the musical instruments, as well as the visitors, and although the lawn had become a swamp, 870 persons, among whom was the Duchess of Sutherland, Lady Howard de Walden, Lady Bridport, and Lady Charlotte Denison, had the courage to face the storm. But if it was a failure as a meeting, as an exhibition it was a triumph. The Azaleas were hardly missed, so rich and varied were the tints of the gaudy plants that took their place, and so admirable their cultivation. Of some of them, indeed, we want words to express the merits. It was on this occasion that Mr. Parker showed how Pelargoniums may be grown; no stiff and sticked formality was there, but the easy and graceful forms of nature, assisted only, not constrained. Roses, too, in pots, from Messrs. Paul, of Cheshunt, deserved much commendation for the same reason; they formed a group of beautiful bushes on one of the semi-circular tables, and were universally admired, although not large enough for the space allotted to them. Upon the whole, we are constrained to add that as flower growers gain ground, the fruit growers are losing it; that is to say, the fruit growers who exhibit. This is much to be regretted, and we trust that on the 12th of July the country gardeners will come forward to vindicate the reputation they have earned with so many years of industry and skill. It is lamentable that the visitors to these exhibitions should go away with the conviction that the spirit of the English fruit gardener has departed from him. That it is not so we know full well, and most willingly testify; but the public has no such information, and forms its opinion upon the specimens produced at the meetings of the Horticultural Society. This is a real and serious injury to the great country gardeners; and if we were one of them, we should regard it as a point of honour that the misapprehension should be removed without loss of time. *Gard Chron., June* 17, 1848.

Publications Received.—*The Home Vegetable Garden.* By Ella M. Freeman. Price $1.75.—*First Book of Grasses.* By Agnes Chase. Price 6s. net.—*The Rose in America.* By J. Horace McFarland. Price 12s. 6d. net. The Macmillan Co., London and New York.—*Black Currant Culture.* By W. P. Seabrook. W. Seabrook and Sons, Ltd., The Nurseries, Chelmsford.—*Practical Plant Ecology.* By A. G. Tansley. Geo. Allen and Unwin, Ltd., Ruskin House, 40, Museum Street, W.C.1. Price 7s. 6d. net.

NOTES FROM IRELAND.

The second day of June gave us our first mmer weather of the season, but there was return next day of the cool conditions hich characterised both April and May, with rsistently north or north-easterly winds. ublin's rainfall for the five months ending ay 31, as registered at Glasnevin, was 13.62 ches, and May was free of frost, with but o mornings on which the thermometer fell 33°.

The Botanic Gardens at Glasnevin are as autiful and interesting as ever. Conspicuus in the extensive rock garden are colonies Saxifraga cochlearis, in snowy drifts, contasting with the intense colouring of hybrid pine Wallflowers.

Various Celmisias, notably C. Munroi, all ppear to have wintered well at Glasnevin, nd early in the present month were coming nto conspicuous bloom. Among alpine rimulas, P. Wardii, with slender stems pringing from tufts of Sorrel-like leaves, was onspicuous with its soft lilac-coloured flowers. econopsis paniculata, with flowers of musty ellow colour, M. rigiduscula, in steely blue, legant Dodecatheons, tiny gems in Polygala alcarea in intense blue, with splashes of gold ust from Alyssum serpyllifolium, masses of ubrietias and Iberis, and many Brooms blaze with colour, all added to the beauty f this fine rock garden. Elsewhere Hipeastrum pratense was brilliant in vivid carlet.

Early May found the People's Gardens in he Phœnix Park in all their glory of colour nd climax of beauty, Mr. Anderson having his year concentrated effort and effect on a ate spring display. One massive bed in particular, among the series of many fine beds, omposed of Tulip Ronald Gunn over a carpet f Aubrietia Hendersonii, with a broad edging f double white Daisies, was especially leasing. The long ribbon border margined with white Arabis and Royal Blue Forget-Me Not, enclosing bands of the brightest of the Wallflowers, and plentifully sprinkled over with many-hued Darwin Tulips, was very effective.

A massive bush of Fabiana imbricata, some 10 feet high, in the Rectory gardens at Malahide, by the sea, has been a lovely sight during mid-May. Archdeacon Lindsay has a rare collection of uncommon shrubs all labelled with meticulous care, his interest in nomenclature being shown in his recently published book, *Plant Names*. That sea influences temper the winds to half-hardy shrubs is well shown, too, in the interesting collection formed by Mr. H. E. Richardson at Rosedale, Shankhill, on the southern side of the county, and here, in May, I saw a glorious colony of Tulipa fulgens lutea, distinguished under its best form by the late Mr. F. W. Burbidge in memory of his artist friend's wife, Mrs. Moon. Among the many interesting shrubs in this garden I noticed Brachyglottis repanda (in full bloom), Exochorda Albertii, Lomatia pinnatifolia, Eucryphia pinnatifolia, many Veronicas, including the pretty hybrid Fairfield, and Deutzia gracilis rosea in full beauty.

Further inland, in the old-world gardens of St. Mary's Abbey, Trim, Co. Meath, the earliest flowers of Strawberries have been blackened by frost, while the precocious young growth of Griselinia littoralis have been cut back. For all that, nevertheless, these terrace gardens, falling sharply from the Abbey to the Boyne, are replete with interest in a varied collection gleaned and garnered by Mr. A. V. Montgomery around his lovely old Irish home, which is the new part of the ancient Abbey founded by St. Patrick in 432. Under the vicissitudes of time it became for a while a school, which the Duke of Wellington, who was born at Dangan Castle, three miles away, attended as a scholar.

It is a matter for regret that the Irish Forestry Society, founded by the late Dr. Cooper in 1903, and which for some years did excellent work in promoting afforestation, has, perforce, been dissolved for lack of interest and support. A general meeting of the Society was held at the offices, 5, Molesworth Street, Dublin, on the 5th inst., when the President, Sir T. Grattan Esmonde, Bart., summarised the situation, and the resolution for dissolving the Society was put and carried. *K., Dublin*

DWARF DAHLIAS FOR BEDDING.

The dwarf Mignon Dahlias are extremely useful and effective for massing in beds or borders previously occupied by late-flowering Tulips or other bulbs. They are all uniform in height—about 15 inches—and have a bushy habit. The flowers have broad, smooth florets, evenly arranged, and the blooms stand clear of the foliage on stiff, wiry stems. These Dahlias give a wonderful display of rich colour in most districts until the end of October. If they are planted 15 inches apart, stakes or supports of any kind are not required. Manure water should be given the roots twice a week until the plants commence to flower, then very little attention is needed, except trimming off old blooms. The following varieties are all splendid:—Albion, pure white; Benbow, rosy crimson; Coltness Gem, crimson scarlet; Daffodil, rich yellow; Dazzler, orange scarlet; Etna, crimson scarlet; Janet, bright orange, a very pretty variety; Julius, bright rosy scarlet; Kathleen, rich deep apricot; Louise, pale primrose; Mincio, vivid scarlet; Roma, rich maroon crimson; and Regent, brilliant crimson. These Dahlias are invaluable to those who have no convenience to keep bedding plants through the winter, for the tubers may be wintered in a frost-proof shed. *R. H. Holton.*

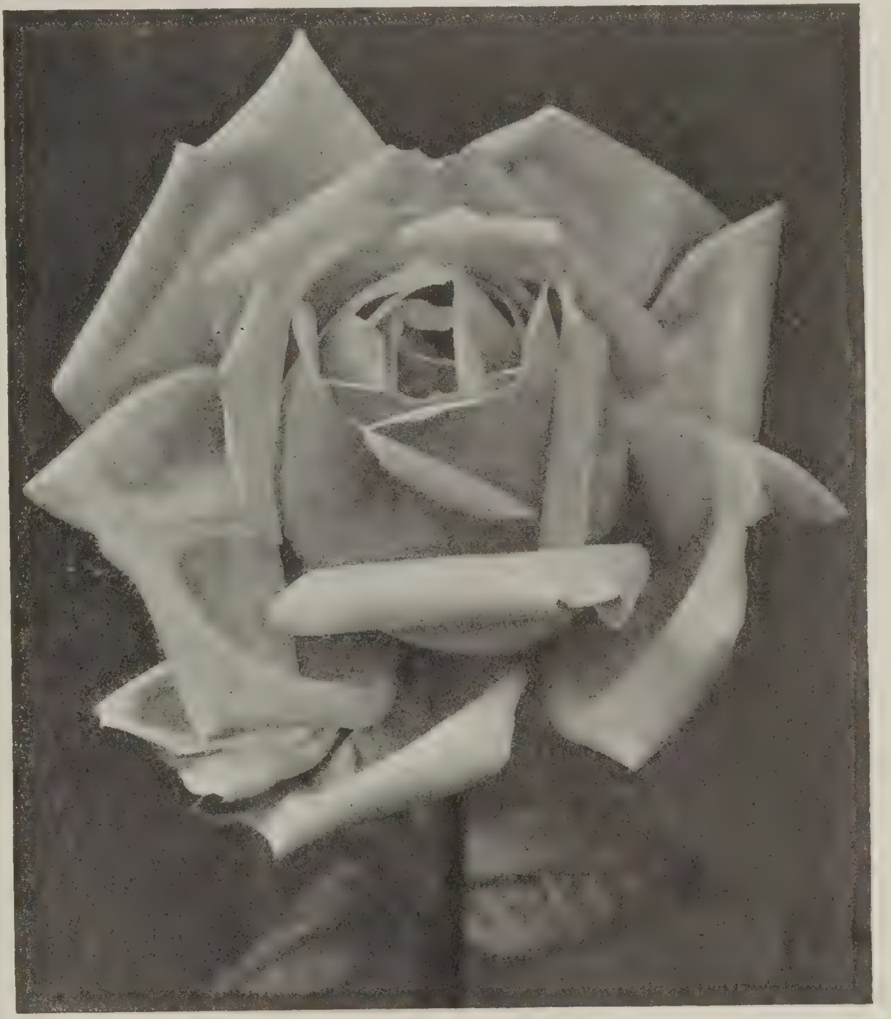


FIG. 165.—ROSE MRS. TRESHAM GILBEY: N.R.S. GOLD MEDAL, APRIL 20, 1923 (SEE P. 236). AN EXHIBITION H.T. VARIETY OF SALMON PINK COLOUR, SHOWN BY MESSRS. CHAPLIN BROTHERS.

ORCHID NOTES AND GLEANINGS.

ORCHIS INCARNATA PULCHELLA.

Linnæus was the author of the name Orchis incarnata, which he described as a species. He did not mention the colour of the flowers, but, judging from the specific name, the tone was pale or flesh-coloured. I have seen plants of this pale hue, but darker colours are quite common. Plants in Surrey, in Holmsley Bog, and on the heaths near Wareham, in Hampshire, have flowers of a dark rose or almost carmine-rose. Enthusiastic botanists and collectors in South Hants give the name O. incarnata pulchella to this dark form. It seems strange that we have so few successful cultivators of the more beautiful of our native Orchids. When planted in cool and fairly moist situations, or when grown in pots under those conditions, they grow larger than in their native habitats. *J. F.*

ODONTIODA J. EVERSFIELD.

Mr. F. C. Puddle sends from Lady Aberconway's gardens, Bodnant, Tal-y-cafn, North Wales, a strong spike of a remarkable Odontioda raised between Cochlioda miniata, a supposed natural hybrid between C. Noezliana and C. vulcanica, and Odontoglossum Prince Albert. The spike bears a closely arranged head of fourteen flowers rather smaller than the ordinary type of Odontioda, but with bright cinnabar-red sepals and petals. The irregularly pandurate lip is pale yellowish lilac, the side lobes lighter in tint, and the ridged crest orange colour. The upper side of the column is purple, and over the whole flower there is a slight violet shade distinctly indicating the influence of Cochlioda vulcanica.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cattleya and Allied Genera.—From a cultural point of view, these comprise Cattleyas, Laelio-Cattleyas, Sophro-Cattleyas, Brasso-Cattleyas, and the other numerous Orchids of which Cattleya is a parent. The unusual absence of sunlight during the past months has not been favourable to the well-being of this group of plants, which delight in an abundance of light at all seasons. Cattleya Trianae, C. Mossiae and C. Mendelii, with their innumerable hybrids, have either passed their flowering period or are at their maximum period of blooming. Unless these plants are strong and well rooted, it is not advisable to allow them to retain their flowers too long. These subjects should be slightly rested after flowering, placing them in a cooler house and reducing the supply of water to the roots slightly, but under no conditions should they be kept so dry as to cause them to shrivel. C. Warscewiczii (syn. gigas), C. Gaskelliana, C. labiata, C. Dowiana, and its variety aurea, with the many hybrids in which these species appear in their parentage are mostly in full growth, and should be grown in the warmest and lightest position in the Cattleya house—C. Warscewiczii and C. Dowiana at the warmer and C. Mossiae, C. Mendelii, and similar species at the cooler end. C. Warneri—a most useful species, which produces its flowers during the summer—is in flower. The autumn-flowering species and their hybrids should be afforded water whenever they become dry, to enable them to build up strong, robust growths, capable of carrying strong spikes of bloom. Brasso-Cattleyas produce their flowers at different seasons of the year, and, speaking generally, enjoy slightly more heat at all seasons than Laelias and Cattleyas. They should therefore also be grown at the warmer end of the Cattleya house.

Repotting.—In repotting the different members of this large family, the roots will be found to differ greatly in size and strength. This will give the cultivator some guide as to the size of receptacle needed for the individual plants. The strong-rooting kinds should be placed in larger pots than the small, thinner-rooting varieties. It is a safe general rule, and one that may be followed at all seasons, with the exception of the winter, to repot any members of this large family as the plants commence to develop new roots from the base of the current year's pseudo-bulb, which is the means of extending the work over the greater part of the year. The most suitable rooting medium I have found consists of equal parts Osmunda, peat, and A.1 fibre cut up according to the size of the plants to be re-potted, with a small quantity of live Sphagnum-moss added. The plants should be potted firmly. as they fail to root satisfactorily in loose material, owing to the amount of water it takes up. For a short time after repotting, water should be applied with extreme caution, but the surroundings of the plants should be kept moist and the plants sprayed lightly once or twice daily during bright weather. These plants need plentiful supplies of fresh air at all times.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Gooseberries.—A considerable number of the branches of our Gooseberries are dying, and the symptoms appear to be similar to that caused by one of the fungous diseases now attacking Plums, only that the foliage remains persistent on the dying stems. Bushes are attacked on the higher ground, although a damp soil and a wet season are said to be conducive to the disease. Apart from this, the bushes are bearing good crops, and look well. We have finished picking fruit for bottling, and the remaining berries should swell rapidly.

Currants.—Both Red and Black Currants are promising crops, and the bushes should be given stimulants.

Stone Fruits.—Cherries and Plums should not be allowed to suffer from lack of moisture, especially as these crops have been thinned severely by inclement weather.

Loganberries and Raspberries.—Superfluous shoots of Loganberries having been cut away, the new fruiting growths should be made secure from damage by wind. They should be tied loosely and in such a way that the sun can ripen the wood, but without interfering with the development of the current year's fruit. This may soon need protection from birds. Raspberries, too, will require attention, and liberal supplies of water and liquid manure should be given the roots.

Strawberries.—In affording liquid stimulants to Strawberries, take care not to splash the berries. The season of this fruit is much later with us than in some districts, and at the time of writing the majority of plants aro onlv just in flower.

Peaches and Nectarines.—Attention should be given to disbudding, stopping and training the shoots of Peaches and Nectarines. A close watch should be kept for the presence of red spider. Adequate soil moisture will tend to prevent this pest from increasing. Guard against over-cropping, especially in the case of recently planted trees.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Chrysanthemums.—Plants grown specially for the production of large blooms should be ready for transference to their flowering pots. Use a fairly heavy compost, mixed with old mortar rubble, and a six inch pot full of bone meal to every bushel of soil. As firm potting is essential, the compost, which should be prepared a week or two in advance of potting, should be in a moist condition, but not too wet. After potting the plants stand them closely together for a week or so at the bottom of a wall, and when the roots are established in the fresh compost set them out in their summer quarters, standing them on a bed of ashes, or on boards. They should then be staked, securing the stakes to wires strained to posts. Compost for potting the decorative varieties, which will soon be ready for their flowering pots, should be prepared in advance, and the required number of pots washed and got ready.

Gynura aurantiaca.—This plant has brilliant, orange-coloured flowers, but its chief charm is its foliage, which is thickly covered with fine, violet-coloured hairs, with a wonderful iridescent sheen. It is easily propagated by means of cuttings inserted any time during spring or summer; and it grows quite well in a cool greenhouse.

Pilea muscosa.—The Artillery Plant is a very useful subject for furnishing the front of plant stages, or where graceful green subjects are required in quantity for floral arrangements. Small specimens in pots are also very useful for table decoration. The plants root very readily from cuttings, and, if several large sprays are inserted in 3-inch or 4-inch pots, and stood in a close, warm house, they will make useful plants in a few weeks.

Centradenia grandiflora.—This pretty little stove plant flowers with wonderful freedom over a long period, and is very useful for house and table decoration. It is easily propagated at any time by means of cuttings formed of young side shoots. To obtain suitable growths for the purpose it may be necessary at times to cut over some of the flowering plants to get them to break into fresh growth.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq Carlton Park, Market Harborough, Leicestershire.

Pests.—Keep a watchful eye on all crops a this time of the year, as pests will most likel be abundant after the mild winter. As soo as any troublesome insects are noticed, syring the plants affected during the evening with suitable insecticide, diluted according to instructions.

Potatos.—Keep the ground between the row well hoed as soon as the plants are through th soil, and give the soil a dusting of Potat manure. Failing this, apply a liberal dressin of wood ash and soot. Leave the earthing up fo as long as possible if rain falls, especially for th late varieties, as they will benefit greatly i not earthed up when the roots are on the dr side. Do not place earth too high up the stems but allow it to lie somewhat flat round th stems, so that rains can soak down to the tubers There is still time to plant late varieties in warn situations, and these will no doubt prove useful especially as many of the earlier plants wer damaged by frosts during the latter part o May.

Asparagus.—The cutting of Asparagus shoul now be discontinued, and the beds given a goo sprinkling of some suitable fertiliser to encourag the plants to build up strong crowns for nex season. Give the beds a thorough soaking wit water if the weather is dry; a light mulch o half-spent Mushroom manure would be ver beneficial to the plants during a dry season Above all, keep the beds clean by hand weedin whenever necessary. Seedling plants should b given the same treatment, and the stronges growths supported in some manner to preven them being damaged by rough winds.

Kohl Rabi.—This is an excellent substitut for Turnips, where the latter are difficult t grow. The stems have a nutty flavour, an are, moreover, thoroughly hardy. Sowings may be made in spring and early summer, and th plants thinned to one foot apart. The soi should be kept well hoed and watered. Th roots may be pulled and used before they become large, and are very nice as a change t Turnips, more especially in winter.

Peas.—Maincrop varieties of Peas should receive every attention as regards staking, watering and mulching. The last will be a valuabl aid to free growth if the weather continues dry and it may take the form of half-rotted manur placed along each side of the rows. When th mulch of manure has been applied a good soaking of water will greatly benefit the crop. Tall growing Peas should not be sown too thickly they do much better and crop heavier if th plants are allowed ample room to develop Make another sowing or two to furnish supplie during early autumn. At this time of the yea it is a good plan to give the drills a copious watering before sowing the seeds to encourag their quick germination; another waterin when the young plants show through the soi will also be advantageous to the crop.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Fruit Trees in Pots.—As growth progresse more water and stimulants will be required If the pots are full of roots afford a top-dressing of good turfy loam, adding a portion of spent Mushroom-bed manure, bone flour and wood ash; if pot space will not permit this, a narrow piece of tin may be placed inside the rim of the pot to accommodate the top-dressing For planted-out trees the borders should be well mulched with half-rotted cow manure.

Cherries.—Trees which were started early and have had the aid of artificial heat will be carrying ripe, or nearly ripe fruits, and at this stage a drier atmosphere is necessary. Very little fire-heat is required, merely sufficient to maintain a buoyant atmosphere when the weather is cold or damp; an excess of moistur in the air with a sudden rise of temperature will cause cracking in thin-skinned varieties. After the crop is cleared thoroughly cleanse the trees with an insecticide, and encourage them by every available means to plump up their buds for another season. Trees in pots should have frequent applications of liquid manure, varied occasionally with soot water, guano water and artificial manure of a suitable nature, and this treatment should be systematically carried out until leaf growth is complete.

Melons.—When the earliest crop is over it is advisable to clear the house completely and prepare it for another crop. Successional plants on which the fruits are ripening should be kept drier, but not so dry as to prevent them from properly finishing; atmospheric moisture should be restricted, otherwise the fruits are liable to crack. A sudden burst of sunshine after a dull period will very often cause the leaves to flag when the plant is healthy and vigorous; when this occurs afford a light shade during the hottest part of the day, keeping the house well damped down in the case of plants on which the fruits are swelling freely. Later batches of plants should be encouraged by every available means to make healthy and sturdy growth. Seeds should be sown to produce plants for a late crop of fruits.

THE FLOWER GARDEN.

By G. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Francoa ramosa.—In two different counties this plant has failed to survive the winter with me when left in the ground. The damp of winter is too much for it, unless it is taken up and placed against a wall where the soil is quite dry. At Ampthill we pot and plunge the plants in ashes in a cold frame—in which position they do well and are now showing flower spikes. The flowers of Francoa are not gaily coloured, nevertheless the long, daintily flowered spikes are very pleasing. Bridal Wreath is the common name of this plant. Seedling Francoas are reasonably easy to obtain, and the plants are often grown in pots for the decoration of cool houses.

Fritillaria imperialis.—This plant resents being disturbed often, but removal is sometimes necessary, otherwise the clumps will become congested with growths, and the flowering be diminished. As the foliage has died down the dividing and replanting may be done now. Provided the soil is not too poor in quality, and of a reasonable depth, almost any kind of ground is suitable for this plant—though I have noticed it does especially well in a sandy loam. The semi-shade of a shrubbery affords a suitable position. If grown in the flower border a light growing annual should be planted close to the Fritillaria, to hide the ground when the latter plant has died down.

Lupinus arboreus.—Although this shrubby plant will grow and flower in any kind of soil, to maintain it in good condition for a number of years it is essential that the ground should be on the dry side, or well drained. In the course of a few years the plants will make specimens four to five feet in height, and a yard across—and practically every shoot will flower. Both the yellow and white forms are equally free blooming and attractive. Where this Lupin is prone to decay, young stock should be raised from time to time by sowing seed as soon as it is ripe, or by rooting a few cuttings after the flowering is over.

Herniaria glabra.—This is a neat-growing, evergreen creeper, and one that is sure to give pleasure where such a plant is required. It will succeed in any aspect, but much the best in shade. It may be used as a carpet plant in the foreground of groups of hardy Ferns, in odd, shady corners, or for masking artificial edgings of stone or brick. It is a close, low-growing plant, and always looks fresh and green, even in the hottest weather. Pulling off and inserting portions of the plant is a very easy means of increase.

IRISES.

IRIS LUTESCENS—STABELLAE.

This Iris has bloomed very freely with me this year, and its pale yellow flowers, which in April herald the coming of its larger and brighter-coloured congeners, are very welcome so early in the spring. It is an accommodating plant and gives no trouble even in my heavy soil, but I fancy sometimes it would do even better in a lighter and drier situation. The flowers are primrose yellow; the plant is about a foot high, and the roots rhizomatous. It is exceedingly free in bloom, and is strongly to be recommended as a desirable garden plant. *T. D. T.*

IRIS SIBIRICA.

Iris sibirica, although one of the commonest of Irises, is a most beautiful species. It succeeds in most soils, but prefers a deep, moist loam and is an admirable plant for the lake garden, for which purpose it is largely employed in these gardens. Its thick, tufted leaves and dainty, veined flowers, borne on long, upright stems, are produced in great abundance, and when planted in irregular bands as a fringe to the shrubbery which encloses the lake garden it is very effective. The plant is easily raised from seed, and seedlings flower freely in their second year; it is not uncommon for five-year-old clumps to throw up as many as 50 flower stalks, bearing five or six flowers each. Seed-pods are produced very freely and should be removed immediately they develop in order to conserve the energies of the plant for next season's flowering.

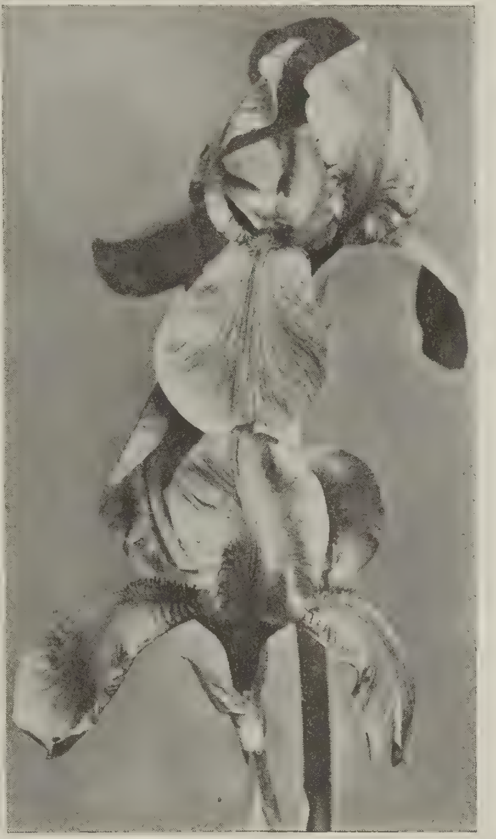


FIG. 166.—IRIS THUNDERCLOUD: R.H.S. AWARD OF MERIT, JUNE 12 (SEE P. 341).

In theory large clumps may be divided after flowering, but I find in practice that the plants suffer less if this is deferred until September. If the plants are heavily mulched after flowering the new roots that develop at the base of the stems are encouraged to ramify near the surface. When division of the clumps is done in early autumn these new roots may be kept intact and the plants in these circumstances quickly become re-established. *W. Auton, Pyrford Court Gardens, Woking, Surrey.*

IXIOLIRION.

As this pretty little Irid is about passing its prime it is well to draw attention to its beauty, especially as it is yet uncommon and frequently unknown in many gardens. It is a bulbous plant reaching to a height of 12 or 15 inches, with thin, grassy foliage somewhat resembling that of the Spanish Iris. The flowers are in loose heads and in varying shades of blue.

Three or four weeks ago I counted nine blooms open together on one stalk, and the freedom of flowering is surprising. I noticed the plants at Hampton Court in May and saw various tints of blue represented, ranging from sky blue to a gorgeous purple.

The cultivation of Ixiolirion (montanum?) is of the simplest, but preference should be given to a sandy soil and sunny situation. The bulbs are best planted in the autumn, in October or November, 3 inches or 4 inches apart, and 2 inches or 3 inches deep, and, being hardy, may be left without protection throughout the winter. I have found it necessary, however, in this locality (S.E.) to lift the bulbs as soon as the foliage decays, as they deteriorate if left in the ground. *T. D. T.*

INDOOR PLANTS.

CELSIA ARCTURUS.

This is a most valuable plant for the decoration of the conservatory or greenhouse, and its long spikes of bloom and greyish-green foliage never fail to attract attention. The rich yellow flowers, with their bright anthers, are borne on stems reaching two feet high.

Seed should be sown in well-drained pots or pans, and placed in a warm greenhouse, covering the seed-pans with a piece of glass and paper to conserve the moisture. As soon as the young plants appear, remove them to a frame, and when large enough to handle, prick them off singly into small pots, using a compost of loam, leaf-mould, sand, and a little mortar rubble.

Water the seedlings carefully, and afford them plenty of air as the weather becomes warmer.

When the pots are filled with roots, transfer the plants to five-inch pots, using a rougher compost, with the addition of some old hotbed manure. When well rooted, feed them with Clay's Fertilizer or diluted manure water.

Towards the autumn the plants will throw a central spike of bloom, and possibly several small ones. Celsia Arcturus is a somewhat gross feeder, and develops plenty of roots; hence the reason for close attention in feeding, etc.

When the plants have finished blooming, cut the spikes off and repot them in receptacles a size or two larger, and grow them in a frame or greenhouse, where they will be safe from frost.

Keep all dead foliage picked off, and the following spring top-dress the plants with rich soil and grow them in a cool house. Good plants will develop as many as a dozen large spikes of bloom, and, if grown under cool conditions, will need no staking. The spikes arch over in a very graceful manner, and are most useful for associating with Schizanthus, Clarkias, etc. A pinch of seed should be sown every spring to maintain a supply of young, vigorous plants. *R. W. Thatcher, Carlton Park Gardens, Market Harborough.*

BROWALLIA VISCOSA.

This pretty annual is very useful for furnishing the greenhouse, and by raising successional batches from seed it may be had in flower nearly all the year round. If a pinch of seed is sown at this time, the resulting plants will prove very useful for late summer flowering. This plant succeeds in any good potting compost, and good examples may be grown in six-inch pots. This is the largest growing of the annual Browallias, and flowers with wonderful freedom over a long period.

Browallia viscosa is sometimes known as B. pulchella and B. Czerwiakowskii; it is a native of the West Indies. *C.*

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 16.—The Chiang-ka River.

FROM Ya-ka-lo, the road to Bat'ang passes through a deep limestone ravine, and merges into a wider, cultivated valley above; but the country is very dry, and it is only on the alluvial plains, irrigated by streams from the high ranges, that cultivation is possible. After travelling for four hours, we camped at the lower edge of the Picea forest, at an altitude of nearly 12,000 feet. The first Rhododendrons appeared here, R. cephalanthoides, or a form of that species (K.W. 5,384), and a bushy species of the decorum type (K.W. 5,405). The seed only of these two was collected—the first Rhododendron seed of the campaign.

There was a Saxifraga opening its maroon flowers, a plant exactly like my Mu-li species (K.W. 5,904); also the rather disappointing Gentiana detonsa—a plant which looks as though it ought to be decorative, but somehow never is.

September 12 was a brilliant day. We climbed the steep forest path to the Kia La (15,800 feet), and after clearing the forest—Picea and Oak, there were no Pine trees—found the rocky slopes speckled with small bluish Poppies (no doubt K.W. 5,365, found on Damyon) and yellow Saxifrages. I am not convinced that K.W. 3,565 is M Prattii; the petals are generally lavender-coloured, six in number, and the prickles are purple at the base, a character I do not recall in true M. Prattii. It is one of the Aculeatae, near M. rudis. From the summit of the Mekong-Yangtze divide—moorland, covered with Heath-like Intricatum Rhododendron—a gorgeous view of Damyon is obtained, a great snow-clad dome rising above the granite wall of the Mekong. The view northwards is more restricted, and we see only limestone cliffs and the low, red hills in the valley of the Chiang-ka River (Fig. 167).

Descending the sheltered flank, we come almost immediately to forest, similar to that on the other side, with the addition of Larch and Juniper trees. But there were sloping lawns and bogs as well, where Gentiana sino-ornata, that glorious blue trumpet, was just as abundant as are Daisies on an English lawn. For depth and purity of colour, for gorgeous effect, there is only one other plant to vie with it—Delphinium yunnanense, also of this country. In the bogs, another Gentian with large flowers of pale China blue formed bright mats and tussocks; it was not unlike G. heptaphylla, but better, and was growing under rather dissimilar conditions, too.

There were two other species of Gentian—purplish-flowered things in quite another class, and species of Cyananthus also. One of the most striking flowers was a Pedicularis of the siphonantha type, but with mixed flowers of lemon and orange, the curly "horn" (the upper lobe of the two-lipped corolla) being orange, the lower lip, which surrounds it like a bib, lemon. I dare say I collected this species in the Bat'ang region in 1911, but if so I had completely forgotten it. I have never seen it elsewhere. Meconopsis was as common on limestone, lower down the valley, as it had been on igneous rock on the other side of the range. But of Primulas I saw nothing new—P. vittata and P. pseudosikkimensis, both in fruit, crowded the becks, and much lower down in the forest I found a sturdy Nivalis Primula in fruit, probably P. sino-plantaginea, like the one found at the Pi-tu La; possibly something else. Anyway, I garnered seed of it, and mingled it with the Pi-tu La seed. Not till the following day, in a bog in the red sandstone valley just above the Chiang-ka River, did I find a Primula unknown to me; and then only a solitary plant, happily in flower—or rather, unhappily, for it was a bonny wee thing (as Mr. Forrest would certainly say), with large mauve flower, white eyed and fragrant, and seed of it would have been welcome. But perhaps I should have missed it altogether then. With it was the ubiquitous P. Wardii, with which I am thoroughly discontented; I really don't deserve it. How I envy Mr. Forrest *his* Primula!

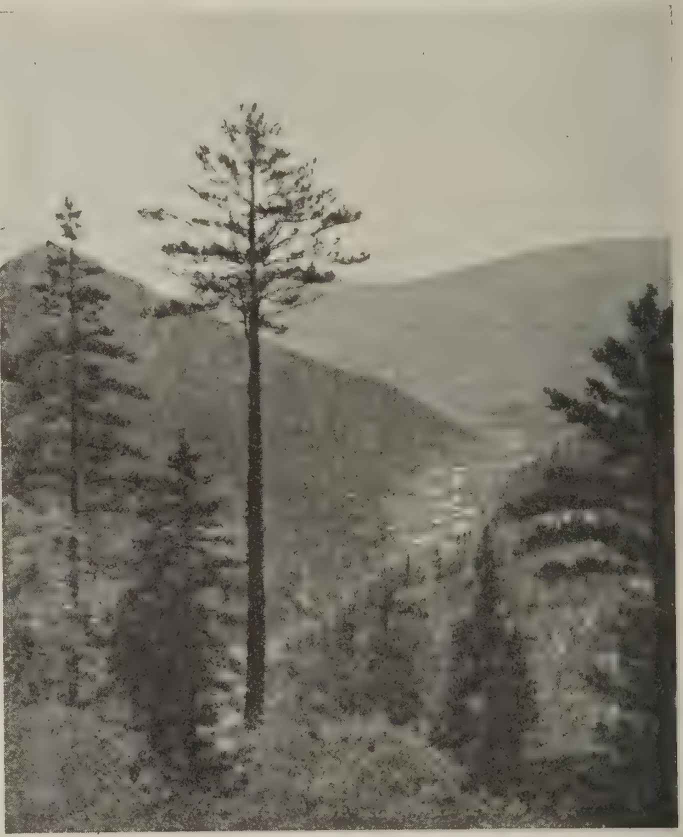

FIG. 167.—ON THE GRASS-LAND PLATEAU; CHIANG-KA RIVER.

The Chiang-ka River here flows at an altitude of between 10,000 and 11,000 feet. There were flowers and bushes on the dry, rocky banks, the most interesting thing I saw being an Incarvillea—rather a big one—in seed. There was also an Euonymus of weeping habit—t stunted tree, in full bearing.

After marching several miles up the Chiang-ka River, we reached a ruined village called Ru, on the provisional frontier between Lhasa territory and Chinese territory so-called. It had been destroyed by the Szechuan soldiery, during the recent war, for harbouring Tibetan levies—no doubt against the inclinations of the inhabitants; for to have Tibetan soldiers billeted on one is no sinecure. Anyhow, it had been rather thoroughly destroyed. The headman, who formerly lived in a castle (the debris testified to its size), now lived in a hovel; but he managed to give me a little room to myself off the kitchen, while my party and the extensive household packed into the other two rooms

On September 14 we left the Chiang-ka river again to recross the Mekong-Yangtze divide by the Bi La, an easy pass, reached in three hours. It was not an unprofitable day, because on the limestone cliffs below I found a Suffruticosa Primula in seed, and collected a good sample. At first I thought it must be P. pulvinata, of the Mekong-Salween divide and Ka-ga-pu; but later in the month I collected that species again from its original home above the Ka-ga-pu glacier (I discovered it there in 1913; it is in cultivation), and compared the two plants. They are not the same. What the new one (K.W. 5,403) is like I cannot say, not having seen it in flower; but it is of the pulvinata type, or like the Mu-li plant (K.W. 4,275). Later, rather to my surprise, I found the new species at considerably higher altitudes, and on rock other than limestone, where indeed it was abundant and obviously flourishing.

The Bi La turned out to be a wide, green meadow, gradually sloping down on either side to rich pastures, dotted with yak grazing. The sward was spangled with flowers, Saxifragas, Gentians, Primulas in fruit, Pedicularis—all the things we had seen before. I found nothing new of note. On the south slope, Oak forest had it all its own way; on the north slope, Picea predominated.

We camped just over the brow of the ridge in a wide, green meadow, and visited the yak-herders' tents.

The following day found us descending from the Bi La by a very steep and rocky path. Having reached the Mekong gorge, we kept for some time high above the river, where, on the sheltered slopes, Hemerocallis flava (or nana) was in fruit, with Eremurus, and in the gullies, many Euonymus trees. The Suffruticosa Primula grew on the limestone cliffs here, too. We reached the Mekong in the afternoon, but had still some miles to go to reach Ya-ka-lo, with a stiff climb at the end. However, by marching after dark we got back at eight o'clock.

From September 19 to 21 we made another

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* The previous articles by Mr. Kingdor Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7, 21, May 5, and June 2, 1923.

flying trip over the Mekong-Yangtze divide, going through the limestone gorge on the Bat'ang road, and turning off before we reached the Kia La. After ascending by a rib through Thorn, scrub-Oak, Poplar, Caragana, Indigofera, Berberis, Cotoneaster, Clematis, Salix, Deutzia, Rosa, Rhododendron decorum, etc., with an undergrowth of Salvia, Pedicularis, Polypodium, Meconopsis, and clumps of papery-looking Compositae—we came to a more monotonous growth of Oak, Rhododendron cephalanthoides (here a bush 3 or 4 feet high), and, presently, Abies and Juniper forest; this last, however, confined to the other (sheltered) side of the pass. There were huge and ancient clumps of the new Suffruticosa Primula here, more floriferous than those met with on the limestone; some of the trusses carried eight or ten flowers, and there was plenty of fertile seed—this at 13,000-14,000 feet.

Descending from the pass through a belt of forest, where Rhododendron "smutty-twig" (K.W. 5,409) abounded, we came to a marshy meadow, spangled with pale blue Gentians, and with clumps of dwarf purple-flowered Rhododendron, now in fruit. It is the common alpine of this range, as also of Damyon. Probably it is near R. intricatum itself, but the flowers are not lavender-coloured. Proceeding over the next forested ridge, we crossed one or two green valleys, and presently descended into another yet wider pasture, where yak still grazed—though it was nearly time for them to descend to warmer levels. *F. Kingdon Ward.*

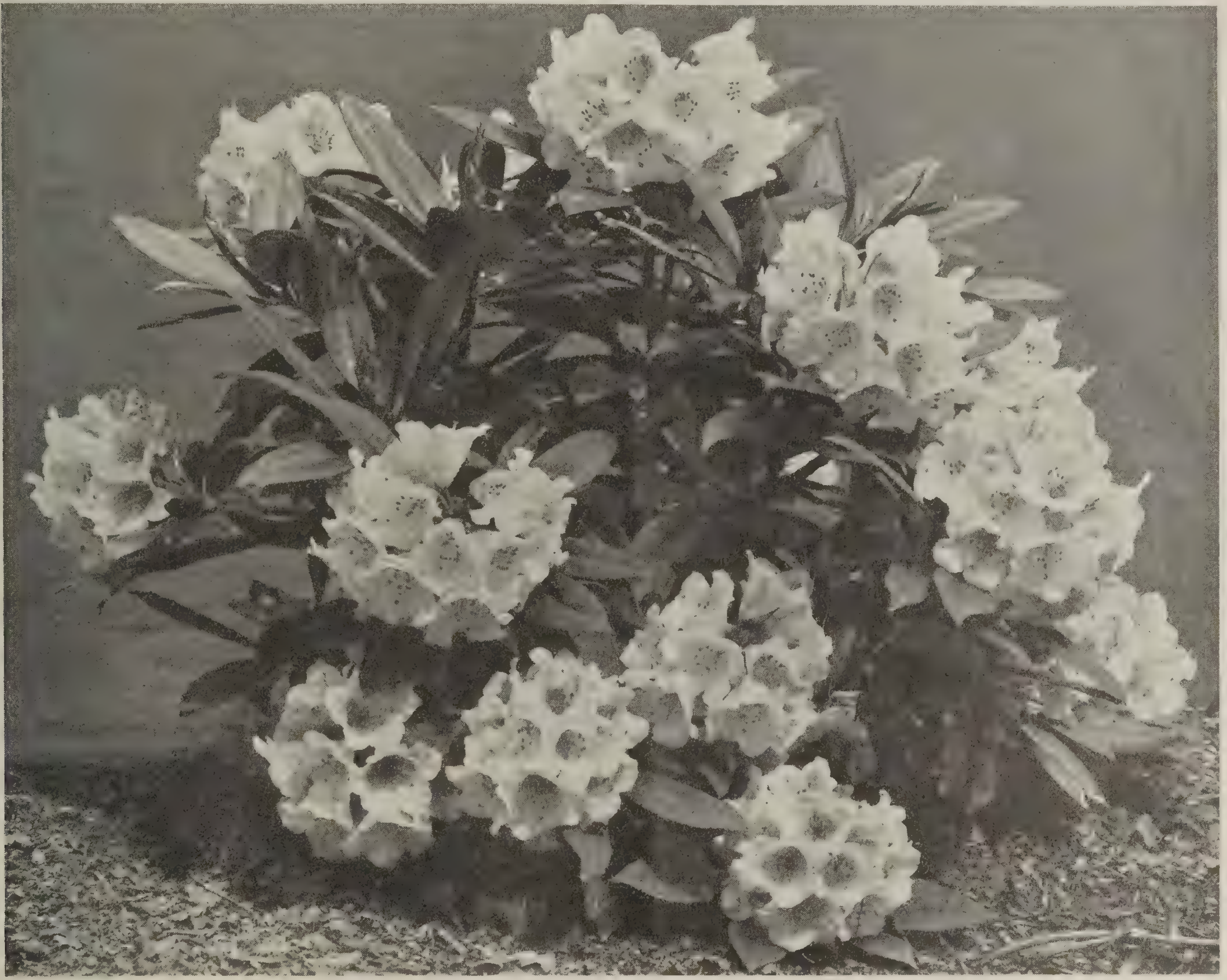

FIG. 168.—A FINE SPECIMEN OF RHODODENDRON INSIGNE IN THE GARDENS AT COOLHURST, HORSHAM.

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON INSIGNE.*

The marked difference in the rate of growth of Chinese Rhododendrons in Great Britain and the period at which they begin to bloom has often been observed, and R. insigne affords an apt illustration of it. Though in no sense an old plant, since it was only discovered in 1908, many species found more recently have become parents and, in some cases, grandparents before R. insigne produced a flower.

Wilson came on the species originally in 1903 on Wa-Shan, the huge limestone bluff about 80 miles N.W. of Kiating, on the extreme west of China, whereof the account in *A Naturalist in Western China* (1913, Chap. XIX.), forms by no means the least interesting chapter in his remarkable book. Of the Rhododendrons on this conglomeration of limestone cliffs more than two miles high and resembling a huge Noah's ark, he wrote: "The gorgeous beauty of their flowers defies description. They were there in thousands and hundreds of thousands. Bushes of all sizes, many fully 30 feet tall and more in diameter, all clad with a wealth of blossom that almost hid the foliage. Some flowers were crimson, some bright red, some flesh-coloured, some silvery-pink, some yellow and others pure white. The huge rugged stems, gnarled and twisted into every conceivable shape, are draped with pendant Mosses and Lichens. . . . How the Rhododendrons find foothold on these wild crags and cliffs is a marvel. . . . Beneath them Sphagnum moss luxuriates. . . . On bare, exposed cliffs I gathered two diminutive species of Rhododendron."

No Rhododendron grower can look unmoved on the picture Mr. Wilson conjures up for us

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*Rhododendron insigne, Hemsl. et E. H. Wils. *Bush*, 1.6 m. high; branches thick, straight. *Leaves* very coriaceous, often sub-opposite, lanceolate-oblong, very rarely broadest above the middle, excluding petiole, 9-13 cm. long, 3-5 cm. broad, shortly acuminate, base cuneate, margins reflexed, shining green above, uniformly clothed with dense, short, grey felt below; mid-rib immersed above, raised below, secondary veins prominent on both surfaces; petioles thick, 1-2 cm. long, flattened above. *Bud-scales* oblong or oblong-spathulate, 1.5-3 cm. long, acuminate, fleshy, brown, lowest filiform, flattened at base, upper ciliolate, more or less pubescent on inner surface. *Flowers* eight or more, in short, lax, corymbose racemes, pale or deep pink, 3-5 cm. across, bracteate; bracts oblong-lanceolate or oblong, lowest filiform, 1.5 2 cm. long, 7-10 mm. broad, fleshy, brown, tomentose without, often pubescent within; pedicels spreading or erect-spreading, 2-4 cm. long, reddish, sparsely pubescent. *Culyx* annular, sometimes truncately 5-toothed; teeth short, broad, rounded, pubescent. *Corolla* wide, campanulate, 5-lobed; lobes erect-spreading, rounded or emarginate. *Stamens* 14 or more, included; filaments 1.5-2.5 cm. long, villous in lower half. *Pistil* equal to the corolla in length; ovary 6-8 mm. long, densely clothed with a white, velvety pubescence; style stout, glabrous, reddish; stigma dark-coloured, flattened. *Fruit* not seen.

Szechuan, Mount Wa, at 2,300-3,000 m. above sea-level, Wilson, 3,965; Pratt, 349; A. Henry, 8,859.

An exceedingly distinct and very striking species, only known from Mount Wa. Neither Pratt's nor Henry's specimens are localised, but I happen to know that they were collected in the same place as my own. E H. W., in *Kew Bull. Misc. Inf.*, No. 4, 1910, p. 113.

of this remarkable mountain so exceptionally rich in floral treasures in general and Rhododendrons in particular. Of the latter Mr. Wilson found no fewer than sixteen species[*] in 1908, and several of these have already given proof of their quality. That the subject of this note is not the least remarkable of them we may be sure, for Mr. Wilson describes it as "an exceedingly distinct and very striking species."

Those who appreciate the habitual restraint this explorer places on the use of superlatives in his field notes, have awaited the *debut* of R. insigne with interest, none the less keen because of the comparative rarity of the plant in Great Britain and the fact that it has been recorded from a single station only (Wa-Shan), a peculiarity it shares with R. concinnum, R. ochraceum, R. Searsiae and R. Williamsianum.

The particular specimen from which the photograph (Fig. 168) was taken has an interesting, if brief, history. It formed one of a batch of seedling Rhododendrons sent to the writer by the late Sir Isaac Balfour in 1914, for trial in calcareous soil, and, at the writer's request, made after reading Mr. Wilson's story of this wonderful mountain of limestone, was included with nine other Wa-Shan species. When received in August, 1914, the specimen was a seedling only finger high, with no more than a scrap of earth about the roots. It was planted with the others in poor, chalky soil in a position sheltered from north and east winds, and not reached by the sun till midday. Except that the ground was kept moist by subterranean irrigation (with hard water), no attention was given to the plants, and they had to take everything but drought, as it came. It goes without saying, too, that they had to share in the general neglect to which gardens were perforce subjected in the four years of the war.

At that time the writer's object was more to see how much chalk the various Rhododendrons would tolerate than anything else; the experiment was needlessly severe, and the casualties consequently more numerous than might have been the case had less drastic treatment been adopted. Though the little plant of R. insigne made but tardy growth, it exhibited none of that tell-tale lightening of the leaf colour which Rhododendron growers know so well, nor any other signal of distress; during the five succeeding winters it passed unscathed through several severe if not prolonged spells of frost. At the end of 1919, still apparently in the best of health, the plant was only six inches high and as much across, but had formed a flower bud. Then it began to thicken out rapidly, and in the spring of 1920 threw a truss of bloom. Moved in November of the same year to the lime-free ground of Mr. Charles Scrase Dickins's garden, at Coolhurst, it grew on without a check, and four weeks ago bore 21 trusses of bloom. Neither leaves nor flower buds were harmed by the frost of the night of April 10, which singed a good many Rhododendrons planted near the specimen of R. insigne.

In Mr. Wilson's original description of the species under the number 3.965, the height was given as 1.6 metres, but when exploring Wa-Shan again in 1908, he found larger bushes of it, 4.6 metres high (No. 1,339).[†] The plant shown in the photograph is only 16 inches high and 18 across, so it has a long way to go before we can judge the mature habit of it. In general form the truss is not unlike that of R. calophytum, though not at present so large; the flower pedicels are erect at first, and inclined to droop after a few days. Both the pedicels and the petal midrib are highly coloured, and the general suffusion of deep rose about the petals is ample to warrant the impression that the species will justify Mr. Wilson's high opinion of it. He originally placed the species as near R. irroratum; later, in *Plantæ Wilsonianæ*, he placed it in the R. argyrophyllum series. Sir Isaac Bayley Balfour took the view that the species came into the R. arboreum group, and, if the plants in cultivation in Britain under the number 1,339 are typical, the silvery indumentum character on the under side of the leaf seems to bring R. insigne into that group. *A. Grove.*

TREES AND SHRUBS.

FAGUS SYLVATICA ROTUNDIFOLIA.

With the exceptions of the purple and copper Beeches, it is rarely that one finds planters specialising in the numerous forms of the common Beech. Quite recently I noted a healthy specimen in a front garden, bordering the highway, at Boscombe, Hampshire. It was ten to twelve feet high, and was so distinct in appearance as to arrest the eye amongst the numerous trees so freely planted everywhere in Boscombe and Bournemouth. Never have I seen so many trees before in a township, built practically on the cliffs overhanging the sea. Amongst the older specimens, Pinus Pinaster is the dominating tree; but large numbers of others seem quite capable of resisting the sea breezes. Pinus insignis alone seems unhappy, but I was informed that this species is subject to a disease that turns the leaves brown. Broad-leaved trees and shrubs are numerous in species, as well as Conifers. The round-leaved Beech does not seem to date prior to 1872, but is worthy of more extended cultivation on account of the small size of the leaves, their close arrangement on the branches, and the neat and elegant appearance of the tree. The leaves are round, emarginate at the base, and generally under 1¼ inch in diameter. *J. F.*

HYBRID LILACS.

Syringa Henryi was obtained by the skilful French gardener, M. L. Henry, by crossing the Hungarian S. Josikaea with narrow leaves and small bluish-purple flowers in long narrow clusters, with S. villosa, which has large leaves and ample clusters of flesh-coloured flowers. These are both late-flowering species, as is the hybrid from them. Plants of this hybrid are large, vigorous, perfectly hardy and grow rapidly. The leaves resemble those of S. villosa, but the flowers are violet-purple or reddish purple and arranged in clusters from twelve to fifteen inches long and broad. The handsomest perhaps of this race, which has been named Lutêce, has deep violet-purple flowers, and is one of the most beautiful of all Lilacs. Eximia, another of the hybrids, has not grown in the Arnold Arboretum to such a large size as Lutêce, but it is one of the handsome late-flowering plants in the collection, with compact clusters of rose-coloured or reddish flowers which become pink after opening.

Lemoine has obtained another interesting hybrid Lilac by crossing forms of Syringa vulgaris with the violet-flowered form (var. Giraldii) of the north China S. affinis. The plants of this parentage grow rapidly and are tall, narrow shrubs. Like their Chinese parent they bloom early and the flowers are fragrant. The best known of these hybrids have been called by Lemoine—Berryer, Claude Bernard, Lamartine, Mirabeau, Pascale, and Vauban. Several of these flowered in the Arnold Arboretum during the early part of May, and promise to be important additions to the collection.

According to the Arnold Arboretum *Bulletin*, Lemoine's latest hybrid Lilac has been obtained by crossing the hybrid Lutêce with the Chinese S. tomentella, and Lemoine speaks highly of it.

TREES FOR STREET PLANTING.

Trees planted in our towns and cities give pleasure to everyone, and street planting has enormously increased of late years, because people love trees.

The cultivation of trees in large towns presents difficulties not met with in parks and gardens, but these can always be overcome if the right selection is made. The City tree has many things to contend with, such as pavements which exclude water, light and air, the removal of top soil when making the roadway, and careless digging near the trees when the gas, electric and water services are being attended to.

When a selection of trees is to be made those in authority should study three essential points. The trees should have an erect habit, a hardy nature, and either handsome foliage or bark; good spring and summer flowering or autumn colouring are desirable, and the trees should be rapid growers.

The writer has recently had the interesting experience of choosing a thousand trees for the central portion of a new town in the home counties in England, and in doing so, these points have always had to be taken into account, whilst due thought has had to be given to the ultimate width of the road, height of buildings, nature of soil, prevalent winds and general taste of the community. A large variety of trees was selected, comprising large trees for open spaces, early and late flowering trees to give a long period of bloom and those that will provide a fine autumnal effect. In England, while we owe a debt of gratitude to previous town officials who in past years have been responsible for planting trees in all possible positions in our streets, one defect is often apparent, and it is that only a very limited number of kinds has been chosen. The writer has greater London in mind, and when walking through its principal thoroughfares, the uninitiated would imagine that only one species could withstand stone pavements, city smoke and November fog.

The Plane is, of course, the one in question, and although very beautiful and possessing a wealth of association, being planted all about Westminster, Piccadilly and Buckingham Palace, the Londoner often feels that a little more originality might well have been displayed in the planting.

Next to the Plane, precedence has been given to the common Horse Chestnut, which has been planted everywhere, sometimes with charming results; but as it is a very large tree, and streets are often extremely narrow, its beauty is quite marred by the hard winter pruning that is necessary to keep it within bounds. The variety plantierensis is just as beautiful and more suitable for street planting, for when fully grown it is rarely more than 30 ft. high. In Paris, where there is some of the most successful street planting in the world, the Horse Chestnut is extensively used. The streets are often 100 ft. to 300 ft. wide, and this allows room for two double avenues to be planted. Standing at the Arc de Triomphe one is fascinated by the beautiful view of nine wide roads, each containing double avenues of this magnificent tree. This is an occasion when the planting of Chestnuts is not only justified, but to be highly commended, as there is ample room for the trees to grow practically undisturbed to their full height and width.

A good many of the British Dominions are adopting a bold plan in dealing with the street planting question. One notable example is in Christchurch, New Zealand, where the whole centre of the town, comprising one square mile, is enclosed by four broad streets, each with a central sidewalk, planted with double avenues of fast-growing trees.

When looking for trees of erect habit, the Jersey Elm, Hornbeam and Lombardy Poplar immediately suggest themselves. The Jersey Elm is the best example, often growing to a height of 60 ft. to 80 ft. The Cornish Elm also is worth considering, but it is more branching. The

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[*] argyrophyllum, 1,210; calophytum, 1,224, 1,367; concinnum, 3,446. 3,448; Faberi, 3,436; lutescens, 1,345; longesquamatum, 1,361, 3,439; polylepis, 1,221; pachytrichum, 1,203, 1,349; ochraceum, 3,425; Searsiae, 1,343. 3,449; stamineum. 3,470; strigillosum, 1,341, 3,429; villosum, 1,342; Williamsianum, 1,350; Wiltonii, 1,353; insigne, 3,965, 1,339.

[†] Rhododendron insigne, Hemsley and Wilson, in *Kew. Bull. Misc. Inf.*, 1910, p. 113

Western Szech'uan: Wa-Shan, woodlands, alt. 2,300-2,600 m., June and October, 1908 (No. 1,339); bush 4-6 m. tall, flowers pink or white; same locality, alt. 2,300-3,000 m., July, 1903 (Veitch Exped., No. 3,965, type).

The fruit of this handsome species, which has not been described, is stout, cylindric, obtuse, 2-2.5 cm. long, about 1 cm. wide, 8-10 valved, with rather thin valves, crowned by the remains of the style, and densely covered with very short, brownish, crispate hairs; seeds oblong, 2.5-3 mm. long, yellowish-brown. Bark salmon-red, becoming grey with age, exfoliating in rather thin, small flakes. *Pl. Wils.*, Part III., p. 528.

Hornbeam is a very similar tree and extremely hardy. Lombardy Poplars make a good formal avenue, and are much used on the Continent. They are great favourites with architects, owing to their quick growth. Populus alba pyramidalis has a white under surface to its leaves, and is a change from the usual Lombardy Poplar.

When choosing trees with handsome foliage, flowers and fruits, a wide field is open.

The Tree of Heaven (Ailanthus) comes first on any list of those with good foliage, and it is now being extensively planted as a street tree. It also possesses flowers and fruit, but these are really a secondary consideration. Paulownia imperialis also has large leaves and is a fine tree generally; it should not be planted in busy thoroughfares, as it requires good soil and more attention than is ordinarily possible. The Black Walnut, which is famous for its magnificent timber, will do well in an open street, only it must be remembered that it is a large tree and that it does not naturally take kindly to severe pruning.

For glorious autumnal effects the Scarlet Oak and Norway Maples (varieties Reitenbachii and Schwedleri) are unsurpassed, but the former should be kept to the suburbs, where it may be planted on the grass margin between the roadway and side walk. The most beautiful of all the flowering trees for street planting is Robinia Pseudacacia, which displays a lovely profusion of bloom in early May. The writer has seen this tree kept to a single stem and flourishing in busy thoroughfares in Paris. The Lime is becoming more popular, and quite rightly so, because of its flowers and sweet scent. Also, it may be treated formally with great success.

The Almond is earliest of all flowering trees, but the Whitebeam, the Mountain Ash and the Manna Ash all give a wealth of bloom. In large town streets the host of smaller flowering trees such as Laburnums, Thorns, Cotoneasters, etc., must be ruled out as unsuitable, and must be reserved for quieter suburbs. One or two variegated trees, such as Acer Negundo variegata, should be included, as their foliage forms a fine contrast to the green leaves of the other subjects.

It is always interesting to have one or two streets planted with trees that are not common, but as some unusual trees are not considered very hardy and fast growing, town authorities may feel that it is a risk to plant them. Nevertheless, an experiment is always interesting, and if the trees do flourish, they will be a great feature to any town. Washington (U.S.A.) has been most enterprising, and has planted a fine avenue of Maiden-Hair Tree (Ginkgo biloba) which has been most successful. Rochester has planted Magnolias in the central part of the town.

It is a vexed question as to how far apart street trees should be planted. The alternative considerations are whether trees should be planted at a distance apart that will suffice when they are fully grown, or whether double the amount should be planted, or whether alternate trees should be of an especially fast growing variety. The latter method would give the street a well clothed appearance as quickly as possible, but the "alternates" should be removed at a later date. The writer has considered the question from every point of view, and feels convinced that it is best to decide on the space the trees will ultimately require, and plant them accordingly, as public opinion, not understanding the needs of trees, often objects strongly to having superfluous trees removed, so that if double the amount of trees are planted in the first place they are likely to be allowed to remain, until in the end the shape of all is spoilt by the severe pruning that is then necessary. The right distance to plant the smaller flowering trees is 35 ft. apart, while the larger kinds should be placed at 50 ft. (or even 60 ft. to 70 ft.) apart.

Great care should be shown in the actual planting of the tree. Next to the selection of proper kinds and varieties, the preparation of the hole is the most important detail of street planting, because the roots have only a very restricted area in which to spread. The soil in which they are planted should be as good and as liberal in amount as possible. In very heavy soil, drainage should be provided to prevent water from standing about the roots. A hole 3 ft. deep and 4 ft. square should be taken out, all the poor soil removed, and a substantial layer of good soil placed at the bottom of the hole to rest the roots on; then a stout stake should be placed in position, driving it well into the ground; the tree should then be placed absolutely upright in the centre, and good top soil, well mixed with rotten manure, placed over the roots gradually, treading in well each layer of soil. In a busy street a wooden or iron guard should be put round the stem to prevent injury. If a hot summer follows the season of planting, the trees should be watered freely.

It is not possible in a short article to even touch on many important aspects of this subject as it is a wide and interesting study. By judicious and wise street tree planting, the beauty of our towns and cities may be greatly enhanced. *J. Butterworth, Welwyn.*

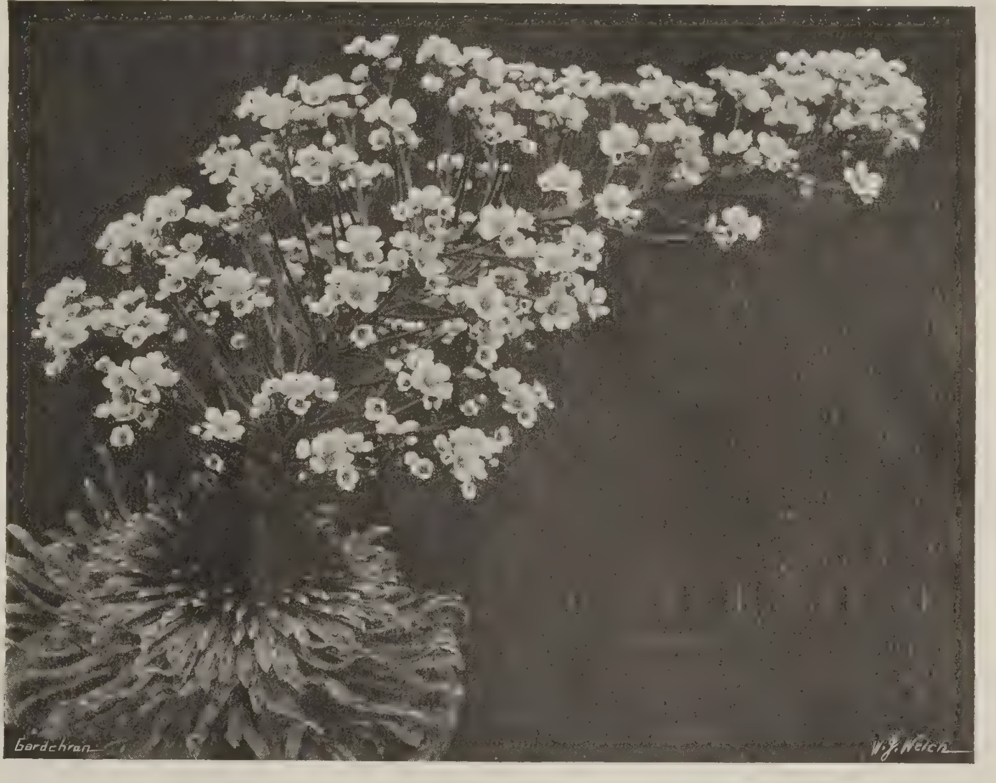

FIG. 169.—SAXIFRAGA LONGIFOLIA; A FINE SPECIMEN GROWN BY SIR EVERARD HAMBRO (SEE P. 342).

FURTHER CONFESSIONS OF A NOVICE.

Anyone who with varying fortune is engaged in the creation of a garden may be likened to an explorer who embarks on a voyage through uncharted seas or unknown lands. It is true that as there were heroes before Agamemnon so heroic men have made gardens long before I began to make mine, yet despite the fact that they have left shining examples of their work, merely to copy and imitate can but result in the making of a garden which is theirs and not my own: for surely it should be the aspiration of every garden planner that, like Audrey, his garden shall be, if a poor thing, yet his own!

There are, it is true, landscape gardeners skilled in design, and in the knowledge of plants, who can lay out lovely gardens, stock them with the choicest plants, and depart in peace leaving their garden behind them for you to enjoy. Gradually their genial enterprise may be forgotten, and the owner, with no intention of guilefulness, becomes, by lapse of time, the sole begetter of the garden. Many such gardens have I seen and admired, and whilst admiring them, listening to the voice of Jacob, I have recognised the touch of the vanished hand of Esau. Other gardens that I know reveal, after twenty years of existence, the unhappy and inconsequent improvisations of the man who, plunging impetuously into the middle of things, began anyhow and ended nowhere. Here are the Scylla and Charybdis of the amateur garden maker. He may make his garden vicariously—letting Apollos plant, and contenting himself with the watering, or, undertaking it himself, he is apt to begin with details or special features—pergolas and herbaceous borders and rock gardens, for example—before his mind's eye has seen the garden that is to be as a whole. "*C'est le premier pas qui coute!*" Therefore I determined to make no *premier pas* till I had laid out my garden—first in my head, and then on paper, in the form of a rough sketch plan. The sloping ground away from the house should be terraced, the terrace retained by dry walls, and beyond and encircling house and terraces on the southern side there should be an orchard of half-standard and bush trees, Apple and Crab, Pear and Plum, Medlar and Quince, enclosed on the distant side by a hedge of Hornbeam, following the contours of the terraces. Beyond the orchard would be the kitchen garden cut into comfortable sections by paths and hedges, and enclosed from the surrounding meadow land by boundary hedges of semi-wild looking plants; Gorse on the left and Tamarisk in front and on the right. It looked pleasing on the rough sketch plan and exquisite as seen ten years hence by the mind's eye; the terrace walls bright with a multitude of wall plants, some snug in crevices, others peeping over the top; the Hornbeam hedge 12 feet high or more, tall and slender and trimmed to ordered shape.

But in order that the imagined beauty of the vision should be realised in ten years' time, it was evident that the rough sketch which was its only basis in reality should be put to the critical test of line and level so that it could be converted into a finished plan. I have in my time plied many trades, and by so doing have become very wise on the subject of my limitations. Therefore I sought the advice of the man of architectural mind, with whom all the visions I have related had been shared, and in whose company they had indeed been evoked, and besought him to get the levels taken, and to convert the rough sketch into a finished, detailed scale plan. This done, both he and I had for all the months of a long dull winter a garden plan to scrutinise and ponder over.

They say that you learn to play cricket during the winter, and to skate during the summer, and I think they who say this are right; for it is in the leisured intervals between action that experience matures into judgment. In any case, when winter was gone I had made up my mind that although many details would need revision, the main lines of the plan were right. Needless to say this is the essential thing; plenty of ground left for subsequent playing with, but the ground included in the plan demarked once and for all. For form, I think, is the all important thing in plant and garden alike. Colour is very nice and very lovely, of course, but form is the ultimate thing that counts. This truth—if truth it be—had impressed itself on me during the years in which I laboured to make somebody else's garden mine. Despite all that I could do, it remained that other person's garden, and I felt myself only an occupier. The form which the designer had imposed upon that garden—good and bad alike—remained. I found that it was easy to make it worse, but impossible to make it better.

To all artists my discovery that form is the first thing and last thing in garden design is no doubt the commonest of common places. Yet I think that it deserves reiteration, for how many gardens are not marred by lack of spaciousness and economy of line! In speaking of form, I am not thinking of formality. It is as much the essential tribute of the wild garden as of the much-tended garden, and it comes into consideration, or should come in, not only with respect to the garden as a whole, and all its parts, but also with respect to the individual plants, and groups of plants which are planted therein. *A. N.*

NOTES FROM NEW JERSEY.

Chrysanthemums generally are later in flowering out-of-doors here than in England, and it is a decided fault to propagate them too early. I root most of my cuttings in May. The commercial growers who plant on benches under glass do so in June or July, and the plants at that time are but a few inches tall. They grow with amazing rapidity, and early sorts, such as Advance, flower in September. Out-of-doors, recognised earlies like Normandie flower with me in late September or October. The heat seemingly affects the bud formation. I did, however, flower Cranford White in mid-September last year by taking the first crown buds. Left alone, these early buds do not usually develop. The Masse type, Roi des Blanc, etc., are useless here, but this season I am trying a number of large-flowering earlies.

I shall use rough frames covered with celo-glass—mosquito netting coated with collodion—to protect Chrysanthemums in the fall of the year. Celo-glass is a valuable, although not perfect, substitute for glass, and presumably similar to "window-white" which I see advertised in English papers.

Reference was made in *Gard. Chron.*, March 3, p. 123, to Asparagus beds being made up of all male plants. This is the plan usually adopted here. I have a bed coming into bearing this year, and I am removing all the berry-bearing plants, substituting them with seedlings of the new Washington variety. There are several Washington types raised by Prof. Norton at one of the Government stations. They are immune to rust, which is a plague here. One may buy seed and plants of these varieties, but it is understood that further selection is necessary.

As Mr. John Heal mentions on page 171, Cannas are gorgeous subjects, and I am beginning to think that they might well be used more extensively for outdoor bedding in England, the south especially. Here we certainly do get a few more degrees of warmth, but the way Cannas grow makes me feel sure they would do well most seasons in England. I have planted them out of 3-inch pots the second week in June, starved plants, which, by the end of July were nearly 3 feet tall and they continued blooming until the advent of frost. I have seen fields of Cannas at West Grove, Pa., the home of Cannas, for it is here that Antoine Wintzer has been raising them for 30 years or so. He has plants towering 7 feet high, and others, like Mrs. Conard and City of Portland, only 3 feet tall. The gorgeous salmons, orange, scarlet, cream and yellow shades in the Conard and Jones collection cannot be imagined. The new pink Mrs. Dupont is far ahead of any other variety. I am sure Mr. Heal would enjoy a visit to West Grove to see these Cannas and have a chat with old Antoine Wintzer, who has used several of the species for breeding. The giant Orchid type I think he developed from C. placida. His President is the best red variety to date. He was urged to take up Cannas by the late Dr. Van Fleet, and I think he has raised close upon 100 sorts. He is one of the few American plant breeders who have really accomplished something, and that without making a big noise. Nowadays, there are parties who, having secured the finest strains and varieties the world affords, now hold themselves up as producers of the world's best. Antoine Wintzer is no post Quarantine 37 wizard; he has spent a lifetime at it, and can really show results.

The illustration and notes on the Skunk Cabbage, page 199, interested me. All through the marshes I see this plant from the car window as I daily ride to New York. This plant was about the first to show itself when the snow went. It may be seen by the thousand in the bog land and by sides of streams. Shortly we shall see the blue Iris versicolor and then the pink Hibiscus Moscheutos, great blocks of them. Goldenrods and Asters follow. Hundreds of acres of marsh land lie just beyond Jersey City, and it is there the mosquitos breed. *T. A. W.*

NOTICES OF BOOKS.

Larger British Fungi.*

At one time we were told that the genus Agaricus included something like a thousand species. Since then great advances have been made in the study of the Basidiomycetes or Mushrooms and Toadstools, and large numbers of genera have been described, instead of making them sections. The above-named book is issued by the trustees of the British Museum, and is founded on the *Guide to Sowerby's Models of British Fungi*, but is greatly enlarged, brought up to date, and has been practically re-written by Mr. Ramsbottom, who must have taken great pains to get such an amount of information within small compass. As a fungus flora it is orderly, and made greatly more intelligible by the drawings representing a species of most of the genera described. The characters of the genus are mostly obvious from a glance at the drawing. When two or more genera are similar the colour of the spores decides the difference. It may be some comfort to those whose trees are killed by Armillaria mellea to know that the Mushroom is edible. It will be a surprise to some that the deliquescing Coprinus comatus and the stinking Phallus impudicus (before expanding) are also edible. The common Fairy Ring Mushroom (Marasmius oreades) can be dried, stored and afterwards restored for use in winter by means of moisture. The drawing of the common Mushroom (Psalliota campestris) is very characteristic; but few would probably see the difference between it and the Horse Mushroom (P. arvensis). This is not surprising seeing that many people look upon the edible species as Mushrooms, and all the rest as Toadstools. Students are warned to make themselves sure of the species before making experiments in eating them. The book is well edited.

VIOLAS.

There were several very good exhibits of these charming plants at Chelsea, and the interest manifested in them was considerable. About thirty years ago there was a very keen interest in Violas, with Viola associations, Viola shows and Viola trials in different parts of the country. There is evidence that interest in them and Pansies is reviving. I am not surprised, because they are such suitable subjects for the suburban gardener.

Recently, when on a visit to the garden of the Royal Horticultural Society, at Wisley, I had an hour to spare, and spent it in the trial of Violas which has been carried over from last year. It is the habit of many people to continuously decry the soil at Wisley. I grant they have some reason for it, but let us be fair. On the sandy soil I have often seen results with popular flowers like Violas, Sweet Peas and Antirrhinums which I have not seen surpassed anywhere else. Now the first two of these subjects are difficult to do well on light sandy land. The late Mr. S. T. Wright told me his plan to get Violas to do well was to remove, temporarily, the top four inches of soil, and then dig plenty of cow dung and some soot into the bed and replace the top soil. He argued that the roots almost immediately after the plants were put in began to search downwards for the cool manure below, and getting well established, lived healthily throughout the hot summer—which they did. Mr. Chittendon's methods must be something similar, because he obtained equally good results last year.

In that spare hour I have referred to, I was chiefly interested in the varieties which have stood well through the winter, and are now flowering freely. The clumps I made notes of are large, and in fine health, many of them quite a foot in diameter.

The self-coloured forms are by far the most beautiful and useful for bedding, and I only, out of consideration of space, mention them.

Much the best white on the day of my visit was White Swan, which has fine, large, pure white flowers, with small yellow eye, erect in habit with petals of thick, good substance, "thick cloth" as the Viola and Pansy men of long ago used to say. When purchasing this variety it is wise to secure the true form, as less substantial ones are sometimes sold for it.

Lady Knox is a beautiful rayless lemon-coloured variety, with a habit similar to that of White Swan.

Luiggi is a very large, rayed, lemon-coloured form, which will appeal to many.

Grievi, an old variety, is pale yellow, slightly rayed, and was carrying hundreds of flowers. It is very early and hardy.

Kingcup has clear, medium yellow, medium sized flowers, and an erect habit.

Moseley Perfection has very large, fine flowers, and is rather tall in growth, but nevertheless excellent, and is a superb exhibition variety.

Tangerine is the deepest coloured of all the yellow sorts at Wisley, but the plants are not quite so large as those of other varieties.

Maggie Mott, helio-blue, erect, tall, inclined to spread later, is a most effective and exceedingly popular sort. The flowers are fine for cutting.

Kitty Bell, with all lavender, medium sized flowers, is very free.

Mauve Radiance, with fine rich bluish-mauve flowers, has an ideal bedding habit, and is very distinct.

Winchmore Bedder is rather deeper in colour than the foregoing, but equally good in every other respect.

The deep blue and purple sorts had not wintered so well as the others. The best dark blue was Archie Grant, a very old variety, which has long held a premier place. It has fine foliage and fine long-stemmed flowers. William aniels has a very erect habit, and is deep yal blue in colour.

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* *A Handbook of the Larger British Fungi.* By John Ramsbottom, O.B.E., M.A., F.L.S., Assistant, Department of Botany. London: British Museum. Longmans, Green and Co., B. Quaritch, Ltd., Dulau and Co., Ltd., The Oxford University Press, Wheldon and Wesley, Ltd., and Oliver and Boyd, Edinburgh. 1923. Price 7s. 6d.

The best purple was Jubilee—a very popular rt—medium in height, with fine rich flowers abundance.

Violetta, the charming miniature Viola, raised d introduced by the late Dr. Stuart, of Chirn- lde, thirty years ago, was growing most gorously, and throwing up its white, sweetly ented flowers in great profusion.

On the rock garden Mr. Clarence Elliott's autiful white, erect flowering type, resembling perfected V. cornuta, was extremely happy and ving pleasure to every visitor. *W. Cuthbert- n, Duddingston, N.B.*

FINGER AND TOE DISEASE AT DROITWICH.

During my association with the Droitwich xperimental Garden one of the first troubles manifest itself was Finger and Toe Disease lasmodiophora brassicae). This was so rongly established in 1902 on certain plots, at in 1903 strong measures were taken to duce or eradicate it. The plot worst affected the garden was chosen for the experiments. he Brussels Sprouts upon several plots were dly affected; and those on the plot selected r the trial had plants so badly diseased that e base of each stem was a mass of disease, arying from two to nearly four inches in ameter, and they were not half developed.

Quick-lime and gas-lime were agents first osen, and the plot was divided into three ctions. It was desirable to effect a decided provement, if possible, without much delay, d two parts were dressed with quick-lime at e rate of 13 tons per acre, and one with gas- me at the same rate per acre.

Each form of lime had long been looked pon as a remedy or preventive in the case of is disease; the general belief was correct in gard to air-slaked quick-lime, but incorrect in gard to gas-lime.

One small plot, No. 1, was dressed with gas- me left on the surface; No. 2 was dressed with ir-slaked lime left on the surface; No. 3 was ressed with air-slaked lime dug in. Each lot received an equal quantity of stable manure the rate of 16 tons per acre. Plots Nos. 1 d 2 were manured and dug; the lime was then pplied to the surface and left there. Plot No. was limed and manured, and then dug. Thus he plot with gas-lime on the surface was longside a plot dressed with air-slaked lime on e surface. The latter being also alongside a lot with the air-slaked lime dug in. By this rrangement no plot had any advantage over nother in regard to the gas-lime and air-slaked me.

The same variety of Brussels Sprout, raised rom seed obtained from the same source as reviously, was grown and planted each year of rial, on the same plots, dressed with the same inds of lime so long as gas-lime was available. hat supply ended with 1907.

During the period 1903 to 1907 inclusive, the me had been applied to the plots at the follow- g rates per acre:—

			Tons.			Tons.			Tons.
903	...	Plot 1	13	...	Plot 2	13	...	Plot 3	13
904	...	,,	6½	...	,,	6½	.	,,	6½
905		,,	6½	...	,,	6½	...	,,	6½
906	...	,,	3¼	...	,,	3¼	...	,,	3¼
907		,,	3¼	...	,,	3¼	..	,,	3¼

At the end of the season 1907, the following vere the results: Clean-rooted and healthy lants—

AS-LIME. Left on urface.	QUICK-LIME. Air-slaked and dug in.	QUICK-LIME. Air-slaked and left on surface.
2·38 %	52·38 %	64·28 %

Gas-lime being unobtainable locally after 1907, t was abandoned, not because it had not been success so far, but because the supply of it ad become unreliable. The gas-lime plot was ade into two plots in 1908, and Apterite and aporite tried, though little success, if any, was expected from them, neither being a fungicide, and four years' trial proved their apparently low value in that respect. For the sake of the results from lime I append the whole results for those four years:—

	APTERITE.	VAPORITE.	QUICK-LIME. Air-slaked and dug in.	QUICK-LIME. Air-slaked and left on surface
	%	%	%	%
1908	0·00	0·00	66·66	77·77
1909	0·00	0·00	71·14	76·19
1910	2·38	7·14	85·71	85·71
1911	5·00	5·00	97·82	97·82

In 1912 and 1913 commercial sulphate of iron was substituted for Apterite and Vaporite, when the advance was most marked; it leapt forward with a bound in the latter year, the following being the results, with healthy plants:—

		QUICK-LIME Air-slaked, left on the surface.		IRON SULPHATE Left on the surface.
		%		%
1912	...	69·00	...	7·42
1913	...	87·50	...	71·42

These results were accepted as guides, and we had no further serious trouble with the disease. By spreading the lime on the surface some of it passes down with the roots when planting the Brassicas. *J. Udale.*

THE SUPPOSED RELATION OF POTATO SKIN SPOT 10 CORKY SCAB.

In a recent paper sent by Shapovalov on the "Relation of Potato Skin Spot to Powdery Scab" (*Journ. of Agric. Research.* XXIII. 4), the startling conclusion has been drawn that these two diseases are synonymous. The pustules of Skin Spot are stated to be immature sori of Corky Scab, in which different filamentous fungi and bacteria develop as secondary organisms during storage.

The significance of this theory is obviously great from a practical point of view, and is readily realised by an inspection of any consignment of Scotch or English seed Potatos where the familiar pustules of Skin Spot are always present to a greater or lesser degree. In our experience, in fact, it is almost impossible to obtain Scotch seed of such varieties as King Edward and Ally without finding an abundance of the disease. If, therefore, one must now regard such pustules as the primary stage of Corky Scab, it is evident that the latter disease, already sufficiently severe in its ravages, is being broadcasted all over the country. Such an outlook is decidedly alarming.

The theory, if true, is also of considerable personal interest to English mycologists. We have the greatest admiration for the work of our American colleagues, but, in the present instance, we must confess that we should have suffered some loss of *amour propre* in admitting the correctness of Shapovalov's conclusions and inferentially the inaccuracy of previous English work on the subject*. As it is, we believe we are in a position to say that we shall be spared this humiliation.

In the spring of 1922, and by the courtesy of Mr. A. D. Cotton, we received a copy of some friendly correspondence which had passed between him and Dr. Shapovalov on the subject of the latter's hypothesis. Realising its significance, we started a careful investigation of the subject with special reference to the question of the pathogenicity of Oospora pustulans. As a result of our experiments, we believe we have obtained overwhelming evidence that Skin Spot bears no relation at all to Corky Scab, but that it is caused solely by Oospora pustulans. It is hoped to publish details of the work in a forthcoming number of the *Kew Bulletin*, but we have been persuaded to make this preliminary statement in view of the widespread interest which Shapovalov's paper appears to have aroused. *W. A. Millard and Sydney Burr, Dept. of Agriculture, The University, Leeds.*

FRUIT CULTURE IN SWEDEN.

Being interested in the question as to how far north Apples are grown, I imposed on the kindness of the Swedish Legation in London for first hand information, and the Secretary has taken the trouble to send direct to Sweden for information. As his letter is of general interest, I give it in full as follows:—

Dear Sir,—With reference to your letter of the 1st February, I have now received information from Sweden regarding your questions and beg to inform you that the Apple tree fruits in Sweden nearly up to the 66th latitude, where the White Astrakan (a good dessert Apple), Charlamovsky, Alexander, Kläräpple, Oraniäpple and Wealthy (a good cooking Apple) grow. In the middle of Sweden they grow a lot of Astrakan, Charlamovsky, Gravensteiner, Gragylling, Hampus, Ribston, Sävstaholms, Akeröäpple and in the south you get the same varieties as in the middle, but also Cox's Orange Pippin, Cox's Pomona, Golden Noble (a good cooking variety), Beauty of Bath, Signe Tillisch, Transparente Blanche and Wellington (a good cooker). Apple growing has even been tried at a place called Overtornea, about six Swedish miles south of the Arctic circle.

Further, I beg to refer to three pamphlets on the subject which I send you under separate cover.—Yours faithfully, S. Lindrath.
Secretary.

The literature so kindly sent in addition to the letter offers abundant evidence that fruit-growing in Sweden is conducted on the most up-to-date lines, and that the country contains a number of keenly interested enthusiasts, and with a very good magazine called *Sverige's Pomologiska Forenings Arsskrift.* The illustrations show incidentally that Sweden is a very beautiful country, and that the best methods of culture are practised, and perhaps are the more thorough because, being so far north, it is more essential to be in earnest than with us. Apple Gravensteiner appears to be a great favourite in Sweden, and I must say that this Apple is also a favourite with me, for it is one of the best varieties I know, and is, I believe, of Swedish origin. A very ingenious method of fastening Apple trees to stakes is given in one of the books sent to me. Some ordinary little corks are strung together in a row longwise on a string. These corks are wound around the stem of the tree, and the ends of the string are, after being crossed figure-of-eight fashion, tied around the supporting post, the corks encircling the tree and protecting it from rubbing against the post or being cut by the string. This is the first time that I have heard of this most useful device. The people of Sweden and ourselves have much in common, both in ancestry and ideals, and I am delighted to find that they are able to do so well in the fascinating pursuit of fruit culture. I feel sure that readers of this paper will appreciate as much as I do the very kind action of Mr. Lindrath. *W. J. Farmer, Ye Hive, Redruth.*

VEGETABLE GARDEN.

SUMMER SPINACH.

After Peas and Beans probably no vegetable is in greater demand during the summer than Spinach. On light, sandy soils it is almost impossible to obtain in quantity the ordinary summer Spinach, as after mid-summer it is liable to run to seed quickly, and even with good cultivation it is very difficult to produce a crop of fleshy leaves.

Spinach Beet is a valuable substitute, and if sown in April may be relied on to give a succession of delicate leaves and provide an alternative dish when Spinach proper is difficult to obtain.

New Zealand Spinach also, if sown in May, will yield a supply of thick, fleshy leaves during the whole of the summer, and although not equal in flavour to ordinary Spinach is worth growing as an aid to the supply during the hot, dry months. *W. Auton.*

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* Skin Spot disease was worked out in 1919 at Kew by Miss Nest Owen, who ascribed it to the fungus Oospora pustulans—a new species. A full account of the work will be found in the *Kew Bulletin of Miscellaneous Information,* No. 8.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

What is a Rock Garden?—In company with a keen and successful cultivator of rock plants, I visited the Chelsea Show, and in looking over the rock gardens we both agreed that the chief award was not given to the best rock garden. The *Oxford Dictionary* gives the meaning of a garden as "an enclosed piece of ground devoted to the cultivation of flowers, fruit or vegetables; often preceded by some defining word, as flower, fruit, kitchen, etc." The award was given to an undoubtedly skilful disposition of natural rock formation, but as a place for growing Alpines it left much to be desired. One or two of the other exhibits were much more suitable to the growth of plants, but the placing of the plants was not always sound instruction to those seeking hints as to how to plant their rock gardens. Too often plants requiring dry winter quarters were planted close to a running stream. I should like to see some notice taken by the judges as to a possible future display in the garden. As seen in recent years the Chelsea rock gardens have been nothing more than bedding out. *W. Butt.*

——I sincerely hope that Mr. W. Watson's letter (page 323) under the above heading will be widely read by all who are interested in rock gardening, and by all who are well wishers of the Royal Horticultural Society. It is an extraordinarily sound, wise and brief statement of what our aims and ideals should be in making rock gardens. It shows at once that the Council of the R.H.S. chose better than they knew when they appointed Messrs. Watson, Stern and Bartholomew to judge the rock gardens at Chelsea this year, and it shows what a monstrous tactical error the Council made in reversing the decision of the judges they had chosen. Personally, I think the idea of judging the rock gardens at all is foolish, even unnecessary. Why penalise the maker of a beautiful rock garden by causing him to pay a year's insurance premium on a large and curiously ugly silver cup? But why say which is the best, the second best, or the third best rock garden at Chelsea? Why not allow rock gardening to remain an art? To admit a challenge cup, and to compete for it, is reducing rock gardening to the level of a fat stock show or a beauty competition. I admit that I was not entirely without guilt myself, and was sentenced to some sort of silver gilt medal, though, not being a "first offender," the R.H.S. do not insist upon my actually getting the medal—unless I pay for it. If, however, we are to have competition and judging, then let us have the best possible judging, such as was provided at Chelsea this year. But it is hardly to be expected that competent, self respecting judges will continue to give their services if they know that after going solemnly round, considering, and carefully "pointing" the exhibits and sending in their well considered decisions, they are liable to have their decisions flatly reversed by the Council. *Clarence Elliott.*

St. Cutbert's Cole.—I have only just seen Mr. R. P. Brotherston's note on "Puzzles in Plant Names" (p. 201), which, like all that he writes on the subject, is full of interesting matter. With regard to "Cuthberdole" and "Cuthbertill," which he regards as forms of St. Cuthbert's Cole, would Mr. Brotherston please give a reference to the place where this name is published? Although it is new to me and finds no place in our *Dictionary of English Plant Names*, it seems to be fairly well known, as I find it in another form in the recently published little book on *Plant Names*, by Archdeacon Lindsay, who suggests that Hollyhock "derived its name from the Holy Island, Lindisfarne, or from the saint of that isle, after whom it was called St. Cuthbert's Kale." Obviously Althaea rosea, the plant usually known as Hollyhock, cannot be meant, and Mr. Brotherston may be right in suggesting that the name had been originally applied to the Marsh Mallow, but here again I should be grateful for a reference to such application, and also for the name "Sea-dock," which is also new to me. Perhaps at the same time Mr. Brotherston would say where the names for Sedum album are to be found. I should like to include them and the others I have mentioned in the supplement to the *Dictionary of English Plant Names*, which has assumed considerable dimensions, and which I hope rather than expect to publish. *James Britten, 41, Boston Road, Brentford, Middlesex.*

Puzzles in Plant Names (See p. 323).—The word Moonock as applied to the Cranberry in the North of Ireland, is evidently traceable to the Irish and Gaelic word "monog," the Bog or Peat Berry. The languages of both countries were originally identical, and within themselves are slowly breaking up into local dialects, as in this country. The g at the end of the word has the sound of k, so that the word is pronounced *Monock.* The first vowel has been corrupted by modern speakers of languages that are not cultivated in modern public schools. I could give numerous examples of similar phonetic changes of old English in two contiguous countries of Britain. The Welsh Cymry or Cwmry, also give g the sound of k at the end of words, and their language is cognate with Irish and Gaelic. *J. F.*

Erigeron mucronatum, etc.—How annoying it is that some common plants refuse to grow with one. The last time Erigeron mucronatum was reintroduced here was from a mass of seedlings growing in a path in the late Mr. Lindsay's garden near Corstorphine. I thought it looked a strange weed, and on inquiry Mr. Lindsay said, "Oh, it's Vittadenia triloba, quite a nuisance." I imagined it had died out here once again, but the other day it was pointed out to me growing in a flourishing condition on top of the garden wall. Erinus alpinus is another troublesome plant. There is no trouble where it grows from self-sown seeds, but when this is not the case, one has constantly to be renewing it. On a wall in a little churchyard some miles from here it grows in thousands, and strange to say, a few years ago, succeeding the re-coping of the wall with a layer of cement, it has taken possession of that seemingly unsatisfying material. One white variety appeared among the others last summer. Then there is Parkinson's "Pseudo narcissus Gallicus minor flore pleno," a few clumps of which have been growing here in a semi-wild condition for an indefinite period. They seem never to increase nor decrease, and annually bear their quota, each bulb, of "one faire double flower, consisting of six rowes of leaves every rowe growing smaller than another into the middle." I question if they would grow at all if cultivated. *R. P. Brotherston, Tyninghame Gardens, Prestonkirk.*

Field Mice.—Some little time ago one of your correspondents recommended pieces of Potatos as excellent baits on traps for field mice. I tried this, but the mice preferred the Potatos in the pits. I also used the baits which are successful with the indoor mouse, but these were also left severely alone. A few days ago I found some Barcelona nuts, and stuck a kernel on to each of the "Nipper" and other traps. In a few days I caught about forty mice. This bait is well worth trying by gardeners who are plagued with this pest. *W. G. H.*

Gardeners' Wages.—In reply to *H. P.* (p. 323), I quite agree with him that the best of gardeners do not always have the best chance. I could mention cases similar to those which *H. P.* refers to. Taking my own case, I have been out of a situation several months owing to no fault of my own. I have been employed as journeyman and foreman in some of the best establishments all my life, and, also like *H. P.*, had a very hard struggle with my family on a very low wage during the war, when the daily papers were advocating large families! I find it very difficult to obtain employment, with three boys, the youngest eight years old; I hope none of them will follow the gardening profession. *F. B.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAN ORCHID.

THURSDAY, JUNE 7.—*Present*: the Rev. Crombleholme (in the chair), Messrs. R. As worth, B. J. Beckton, J. Birchenall, A. Burn A. Coningsby, D. A. Cowan, J. Evans, W Giles, Dr. R. N. Hartley, J. Howes, A. Keelin D. McLeod, W. Thompson, J. Whitham and Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum Mirimar, a fi variety with a heavy blotch on the lip; *Od crispum Apple Blossom*, a flower shaded ro colour; *Odontioda Murillo* (*Odta. Chantecler Aglaon*), a richly-coloured flower of good shap *Cypripedium Antinea* (*Lord Derby* × *Godfroyae*), a pale yellow variety heavily spott with burnt carmine and with a yellow pouc From S. Gratrix, Esq.

Odontoglossum Radiant (*Alexandria* × *Dora*), a very pretty round flower, t sepals and petals being rose purple, spott deeper purple, and with a large, fla white lip; *Brasso-Laelio-Cattleya Jupiter va Mrs. Hanmer*, a very large flower, the sepa and petals slightly flushed; the front lobe the beautifully frilled lip is cerise purple, a the lip has a yellow throat. From A. Hanme Esq.

Odontioda Duchess of York (*Odta. Chantecl* × *Odm. hybrid*), one of the finest varieties the type; *Miltonia Lady Veitch* (*Mem. G. Owen* × *Jules Hye de Crom*), a very pret variety, having a richly coloured mask on light ground. From H. T. Pitt, Esq.

Cypripedium Goultenianum albens (*callosu Sanderae* × *Curtisii Sanderae*), the flower emerald-green in colour and has a yellowi green lip. From Messrs. Keeling and Sons.

AWARDS OF MERIT.

Odontoglossum crispum Annette; *Od amabile St Andre*; *Odm. eximium St. Alba Laelio-Cattleya Surprise* (*L.-C. Aphrodite* × *L.-C. Canhamiana alba*). From S. Gratrix, Es

Cypripedium Marian; *Odontioda Chantecl Orchidhurst var.*; *Odontonia Gratrixi* (*Odontonia Magali Sander* × *Odm. Rio Tinto* From Mrs. Gratrix.

Odontoglossum Promerens var. Prince Mary; *Odm. Penelope, Rosslyn var.* Fro H. T. Pitt, Esq.

Odontioda Marina var. rubra. From Hanmer, Esq.

GROUPS.

S. GRATRIX, Esq., West Point (gr. Mr. J Howes) staged a group for which a Gold Meda was awarded.

A. HANMER, Esq., Buxton (gr. Mr. W Giles) was awarded a large Silver Gilt Meda for a group.

SOCIETE NATIONALE D'HORTICULTUR DE FRANCE.

THE Spring Exhibition of the French Nationa Horticultural Society was held this year i Paris, from May 25 to June 3. It took plac once more at the Cours la Reine, in a specia marquee erected for the purpose, and the situation was found much more central and convenient than the large greenhouse in the Jardi d'Acclimatation, where the shows have bee held for the past few years.

There were plenty of exhibits, and the scen was quite a gay one. Wide gangways were le for the public, and the exhibition was crowde during the whole time it was open.

Among the numerous stove plants, M. CHANTRIER, of Mortefontaine, showed his usua fine collection of Brazilian Caladiums, severa with beautifully marked foliage; also a fine specimen of Nepenthes Tiveyi with the pitchers well developed.

Single and double tuberous Begonias were represented by the exhibits of MM. VALLERAND FRERES, of Taverny, and M. BILLARD, of Vésinet. Some of the plants bore immense flowers; among other varieties were North Pole and Gerbe Rose, both multiflora kinds.

There were several very fine collections of
ydrangeas; M. **Henri Cayeux**, Director of
e gardens of the town of Le Hâvre, contri-
ted some new varieties, of which a number
d received Certificates, with very large
ooms. M. **Fargeton**, of Angers, sent the
riety splendens, a very beautiful pink colour;
iomphe, a large bright pink variety; and La
arne, with flowers of a lovely blue. M.
rillet, of Tours, also sent a number of un-
med sorts.

The Zonal Pelargoniums sent by M. **Poirier**,
Versailles, were arranged in masses, each
riety by itself; the exhibit as a whole was
blaze of colour. Among the many varieties
re Sénateur Herriot, bright red; Monsieur
irier, magenta-red; and Marguerite de Layes,
ite. There was only one exhibit of Carna-
ns, that of MM. **Vacherot et Lecoufle**, of
issy St. Léger; these included fine blooms
Alaska, creamy-white; Vesuvius, purplish-
l; and Maurice Lecoufle, magenta.

The Orchids were assembled in a smaller hall
the side of the main marquee. They formed,
usual, a collective exhibit from the principal
ench growers, arranged under the auspices
the Orchid Committee of the Society, of
ich M. Julien Potin is the President. Among
er features of the display may be mentioned
elio-Cattleya Truffautiana, pink, tinged with
ff; Cattleya Mossiae Wagneri, pure white;
ttleya Marthe Gratiot, white, with fimbriate
ellum; Odontioda G. Bultel, with large
rlet flowers; Cattleya Mossiae × Brasso-
ttleya Veitchii, pink, with large fimbriate
ellum; all these were awarded a Certificate
Merit.

M. **Julien Potin** showed a very interesting
entific exhibit, consisting of Orchid seed-
gs in glass vessels, which had first been
rilised and then infected by the special
gus which assists germination. There were
ontoglossums 28 months old, hybrid Cattleyas
months old, Vanda caerulea, etc., which had
n raised in this way.

Messrs. **Vilmorin, Andrieux and Co.**'s
hibit occupied a central position in the
rquee, and consisted of two fine groups, one
each side, presenting a striking medley of
asing colours. From the main groups,
aller clusters emerged, consisting of such
nts as Oriental Poppies, Chrysanthemum
etum Etoile d'Or, Schizanthus, and pink
vatera, in addition to two lovely groups
cut Sweet Peas. A stone nymph stood
neath colonnades over which hybrids of
opaeolum Lobbianum climbed; at the base
s a pretty carpet of Androsace coronopifolia,
th its little white flowers, varied with dwarf
e Ageratums.

MM. **Cayeux et le Clerc** also showed a fine
hibit, in groups of plants all of one kind,
luding Clarkia Orange King, Nemesia, Tom
umb Tropaeolums, Schizanthus, and Aster
lostephioides. Besides these, there was a fine
lection of single Pyrethrums, including Ruth,
th pink streaked petals, and James Kelway,
l; the double varieties umbellatum (pink),
d Marie le Clerc (white); single Paeonies;
d Delphiniums.

The firm of **Ferard** put up a very pretty
hibit; it represented a little wall over which
mbing Tropaeolums were growing, and behind
e wall a rockery, abundantly furnished with
rious alpines. In the foreground was a row
blue Irises—I. filifolia La France—and a
th paved with stone slabs in the interstices
which were planted dwarf species. The same
m also showed two large groups of mixed
wers, and a number of Cannas, among which
re Oiseau de Feu, Oiseau d'Or, and
nturion.

Irises were well represented by the exhibit of
M. **Cayeux et Le Clerc**, and by that of MM.
lmorin; the latter firm showed a series of the
ge-flowered seedling varieties raised at
rrières, including Ambassadeur, magnifica,
llerine, and Medrano. MM. Cayeux et Le
erc had an excellent group, comprising, be-
les the best-known French varieties, a number
new or unnamed varieties of their own rais-
g; Bélisaire, Horace, etc., were well shown by this firm, as well as the English varieties, Lord of June, Sarpedon, Dawn, Caterina and others, and some German kinds, mostly of yellow colour, including Loreley, König, Prinzessin Victoria Luise, etc. M. **Maron**, of Brunoy, had a small exhibit, composed for the most part of hybrids of Iris Ricardi raised by the French specialist, M. **Denis**.

Roses were represented by various exhibits of great merit; they were shown in various forms—umbrellas, weeping standards, pergolas, dwarfs, ordinary standards, etc. MM. **Leveque et fils**, of Ivry, showed many varieties of first-rate quality; among others were Souvenir de Jean Croibier, a beautiful pink variety; Los Angeles, a Pernetiana hybrid; and Admiral Ward, deep red. MM. **Defresne**, of Vitry, had also a fine collection, including Mme. Léon Pain, H. T., pale pink; and a series of Pernetiana varieties. MM. **Nonin et fils**, of Châtillon sous Bagneux, brought a fine collection of long-stemmed kinds trained in umbrella form, arches, and pergolas, beneath which were arranged little groups of dwarf varieties. Among other kinds were noted Souvenir de Georges Pernet, a very fine pink, and Louise Catherine Breslau, pinkish yellow.

A collection of Roses of great merit formed a part of the excellent exhibit of MM. **Moser et fils**, of Versailles, the varieties being chiefly polyanthas, dwarf or pergola-trained. One of the varieties shown was Bordure, a dwarf Wichuraiana with pink flowers; and two novelties, raised by MM. **Barbier**, of Orleans, were Eugène Barbier, with creamy white flowers suffused with yellow, and Rheims, with a large pink flower tinged with a yellowish shade.

MM. **Croux et fils**, of Chatenay, had a large group composed of excellent Rhododendrons such as Robert Croux, blood-red; Annica Bricogne, mauve; Lady Eleanor Cathcart, a pretty pink, etc. The firm of **Moser** arranged, at the entrance of the marquee, a modern garden scene, with pergolas adorned with climbing Roses and a background of various sorts of Rhododendrons and Azaleas.

M. **Weiss**, of St. Cloud, showed a little Japanese garden with a well, a wooden palisade, enclosure, rockwork, and the usual accessories, furnished with Japanese Maples, Bamboos, dwarf Conifers, and green turf.

M. **Thuilleaux**, of La Celle St. Cloud, showed specimens of trees, among which were some very fine Conifers; and M. **Martin**, of Louveciennes, had very good Japanese Maples.

Vegetables were represented by the usual exhibit of the firm of **Vilmorin**, who had a fine and well-varied collection, set out with very good taste.

The exhibition was completed by a series of exhibits of garden tools and sundries, a number of plans for gardens, and, as usual, a little salon of paintings of flowers and outdoor garden scenes. The imitation flowers and vegetables of M. **Theveny** also deserve mention; they were the best that have yet been seen, from the point of view of artistic and faithful reproduction.

The Grand Prix d'Honneur of the President of the Republic was awarded to MM. **Leveque et fils**, of Ivry, for Roses.

Certificates of Merit were awarded to the following firms for plant novelties, by the various Committees of the Society :—

To MM. **Cayeux et Le Clerc**, for garden Irises Fédora, Fidelio, Horace, Idéal, Jacqueline Guillot, Mme. Abel Chatenay, Mascotte, and Marc Aureau.

To MM. **Vilmorin, Andrieux et Cie**, for Irises Châtelet and Grenadier.

To M. **Barillet**, of Tours, for Hydrangeas E. L. Barillet, Mme. Louise Dutrie, Ma Petite Marie, and Beauté de Tours.

To M. **Henri Cayeux**, of Le Hâvre, for Hydrangeas Le Cygne and Matador.

To MM. **Croux et fils**, for Rhododendrons Souvenir de Gustave Croux, Monsieur Jean Mercier, Maurice Croux and Monsieur Charles Prince.

Several handsome Caladiums, novelties raised by M. **Chantrier**, were also similarly honoured, notably Mme. Eugène Lasseaux and Mlle. Renée Mornay, and so was the pretty Viola bosniaca with pink flowers, shown by the firm of **Ferard**. *A. M.*

CHAMBER OF HORTICULTURE.

The fourth annual general meeting of the Chamber of Horticulture was held at 18, Bedford Square, W.C. 1, on Wednesday, June 13, 1923, Mr. G. W. Leak presiding. Others present were: Messrs. Joseph Rochford, Geo. Monro, R. H. Page, Milton Hutchings, W. E. Wallace, A. Harris, P. F. Bunyard, C. Engelmann, J. H. May, J. S. Brunton, H. Curtis, H. A. Grindrod, C. G. L. Du Cann, W. H. Page, R. Thomas, H. Jolis, H. J. Jones, H. H. Wardle, and C. M. Matthews (Secretary). Expressions of regret for non-attendance were received from: Alderman E. C. Moore, Lieut.-Col. H. R. Fletcher, Messrs. G. H. Barr, W. Nutting, John Harrison, jun., W. D. Woodrow, A. W. White, Chas. H. Curtis, F. R. Ridley and Geo. Shawyer.

The minutes of the previous annual general meeting were read and confirmed.

The President, Mr. G. W. Leak, in briefly reviewing affairs during his year of office, referred to the difficult position of the Chamber when he accepted the presidency, but during the year a series of conferences with affiliated associations had taken place, which resulted in proposals that should put the Chamber on a firm footing similar to that of other central associations. The success of the Chamber depended upon the co-operation and good feeling of the other associations. If the Chamber was not a co-ordinating body it was valueless and it could not co-ordinate unless it had the opportunity. Mr. Leak said it was agreed that a co-ordinating body was desirable and necessary, and if all the parties worked in perfect harmony there was a great future for the Chamber of Horticulture.

Referring to the annual report, the President said that important work had been done in Parliament, and success was met in placing the horticultural legislative programme before candidates at the last General Election. Parliamentary work, where it concerns more than one section, will still be an important function of the Chamber. Agricultural (with which is embodied horticultural) legislation is at the present time engaging much attention by reason of its great importance. As regards the produce prices inquiry, the Chamber, together with other associations, did all that could be done in the matter. Transport affairs, which again concern all sections, received a great deal of attention.

Speaking of the Technical Committee, Mr. Leak said that this Committee was one capable of doing as great work for horticulture as any committee could possibly do. This Committee already had done a great deal, and it was hoped to be of still greater use in the near future.

The adoption of the annual report was then formally moved by the Chairman, seconded by Mr. Geo. Monro, and carried unanimously.

The adoption of the annual accounts was proposed by the Chairman, seconded by Mr. W. E. Wallace, and carried after discussion, Mr. Du Cann pointing out the necessity for economy, to which the Chairman replied that the Finance Committee already had that need in mind.

In proposing Mr. H. O. Larsen to the presidential chair for the ensuing year, Mr. Leak briefly but comprehensively referred to Mr. Larsen's high position in the horticultural industry and his experience in horticultural organisation, qualifications ably fitting him to direct such an organisation as the Chamber. Mr. A. Harris, in seconding, paid tribute to Mr. Larsen's great experience, and similar support was given by Mr. Geo. Monro and others. The election of Mr. H. O. Larsen as President of the Chamber of Horticulture was then carried with acclamation.

In moving a hearty vote of thanks to the retiring President, Mr. Joseph Rochford said everyone knew what Mr. Leak had done during his year of office. He had done everything in his power to advance the interests of the Chamber, and his efforts were greatly appreciated. Mr. P. F. Bunyard seconded the motion, which was carried unanimously. Mr. Leak suitably replied.

Messrs. John Harrison, jun., C. E. Pearson, Joseph Rochford, A. W. White and W. E. Wallace were elected Vice-Presidents. Alderman Edward C. Moore was unanimously re-elected Hon. Treasurer, and Messrs. George Cobley, Kay and Co. reappointed auditors.

The Secretary reported the result of the ballot for the Insecticides Section Committee, and stated that there were two vacancies to be filled on the Technical Committee. Messrs. P. F. Bunyard and C. Engelmann were elected to fill these vacancies.

The following eight gentlemen were elected as representatives of the private members on the Council :—Messrs. Geo. Shawyer, G. H. Barr, W. H. Page, F. R. Ridley, R. H. Page, M. Hutchings, W. Nutting and C. Engelmann.

Obituary.

Thomas Challis, V.M.H.—On the 8th inst., after a long illness, Thomas Challis passed away in the home of his retirement, Herbert Cottage, Wilton. For nearly sixty years Mr. Thomas Challis was gardener at Wilton House, near Salisbury, and during that period he became one of the most famous gardeners of his time, and maintained the fame of the gardens over which he had charge for so long a period. He was an excellent cultivator of fruits and vegetables, and a splendid organiser. A man of the highest integrity, he had also a charming and outstanding personality which endeared him to all who had the pleasure of his acquaintance. As a judge, his services were in great request at the principal exhibitions in the land; he served on the R.H.S. Fruit and Vegetable Committee for many years. He was a capital speaker and was gifted with a voice of excellent carrying power; he was ever on the side of gardeners as a class, as some readers may remember who have heard him speak at R.H.S. luncheons at Holland Park and elsewhere. In December, 1915, having served successively Lady Herbert of Lea and George and Sidney, Earls of Pembroke, Mr. Challis retired to spend the evening of his days in the village of Wilton. On the occasion of his retirement the family he had served so well presented him with a suitably engraved commemorative cup. For some time Mr. Challis was Chairman of the Salisbury Gardeners' Society; he also took an active interest in the co-operative movement at Wilton and in the South Wilts Constitutional Association. For twenty-six years he held the position of Churchwarden at Fugglestone Church, where, on Tuesday, June 12, his remains were laid to rest, amid many tokens of regard and respect. Floral tributes were sent by the Earl and Countess of Pembroke, the Dowager Countess of Pembroke, the Hon. George Herbert, in addition to those from relatives and friends, members of his late staff, and of the societies he had been associated with.

Eugene Callier.—We regret to learn from the French horticultural Press of the death, on May 5, of M. Eugène Callier, who occupied a high position in horticultural circles in Roubaix. He had attained the considerable age of eighty years, and was still president of the Horticultural Club and of the Syndical Horticultural Chamber in his town. He had been created a Chevalier du Mérite Agricole for his many public services.

William Priest.—It is with sincere regret that we have to announce the death of Mr. William Priest, gardener at Eglinton Castle, Kilwinning, Ayrshire. He had been ailing for several weeks and expired suddenly on the 10th inst. He will be much missed by a wide circle of friends. In his younger days Mr. Priest was employed in the gardens of Lambton Castle; later he was appointed foreman to the late Mr. David Thomson at Drumlanrig Castle, and afterwards became gardener at Newbattle Abbey, where he carried out some notable improvements, but did not stay long enough to see the full results of his labours. From Newbattle Abbey he was appointed gardener to Lord Eglinton at Eglinton Castle, where he laboured for nearly forty years. A staff of twenty-two was employed then, but considerable reduction had to be made during later years and heavier duties devolved upon him. He possessed a most unassuming manner, and was esteemed by all who were acquainted with him. A large number of people attended the funeral on Wednesday, the 13th inst., when his remains were interred in the cemetery at Kilwinning. Amongst the mourners were several of his gardening friends, who had come long distances to pay their last tribute of respect.

John E. Jefferies.—After a long illness, Mr. J. E. Jefferies, of Oxford, passed away recently, at the age of 77 years. Son of the late Mr. John Jefferies, he was a native of Cirencester, and settled in Oxford as a seedsman and florist. He was passionately fond of horticulture in all its branches, and was particularly clever in the arrangement of floral groups. For many years he was an active member of the Royal Oxfordshire Horticultural Society and the Oxford Rose and Chrysanthemum Societies. During the war period he acted as secretary of the first-named society, and eventually took a prominent part in welding the Horticultural and the Chrysanthemum Societies into one strong body. The funeral was largely attended by relatives and by friends, who greatly admired the deceased gentleman, whose garden at Littlemore was always open to inspection by anyone fond of flowers and plants.

ANSWERS TO CORRESPONDENTS.

APPLE TREE DISEASED: *Rogate.* The tree is affected with silver leaf. The disease is not infectious until the fungus appears on the dead wood. The dead branch or dead tree should be burnt at once. There is no need to remove the soil

CHARCOAL: *A. M.* The material you send appears to be flue ash, and not pure charcoal. Certain kinds of flue ash contain fertilising properties, but an analysis would be necessary to determine this. In any case the material would be suitable for use on lawns, mixed with fine, dry soil, and used as a top-dressing.

GRAPES DISEASED: *Miss M. S. and R. N.* The berries are affected with spot disease, caused by the fungus Gloeosporium ampelophagum. Spray the vines and the bunches of Grapes with liver of sulphur at a strength of ½ oz. in two gallons of water, or dust flowers of sulphur on the leaves and bunches and again at an interval of 10 days. Next winter, when the vines are dormant spray the rods with iron sulphate in solution.

MAIDENHAIR FERN FRONDS SHRIVELLED: *A. E. S.* The fronds received show no traces of fungous disease, or attacks of insect pests, but their condition suggests that the plants have been subjected to an excess of water at the roots after they were repotted.

NAMES OF PLANTS: *V. H. L.* The specimen in flower is Rubus deliciosus; we cannot determine the other specimen without flowers or fruit.—*W H. S.* 1, Raphiolepis ovata; 2, Photinia serrulata.—*F. E.* 1, Olearia stellulata; 2 Rhus typhina; 3, not recognised; 4, Lonicera flavescens.—*W. W., Berks.,* and *L. Y.* We cannot undertake to name florists' flowers.

FERNS DISEASED: *T. G.* Mealy bug was present on some of the Maidenhair Fern fronds received, and mildew was found on the Pteris fronds. Ferns need very careful attention with regard to watering and temperature after they are potted and until they have become re-established, and quite frequently they suffer as a result of excessive moisture at the roots. Scrupulous cleanliness is also necessary, especially while the fronds are in a very tender condition.

Communications Received.—J. H.—A. C. H.—W. H. -C. T.—W. T.—J. M.—W. D. C.—G. R.—D. G. P.—W. D.—L. M. C.—C. J. D —M. L.—T. R.—A. B.—A L.—A. G

MARKETS.

COVENT GARDEN, Tuesday, June 19, 1923.

Fruit : Average Wholesale Prices.

	s. d. s. d.
Apples— Victorian, N. S. Wales, Tasmanian, W. Australian and N. Zealand	
—Sturmer ..	14 0–15 0
—Monroe's Fav.	14 0–16 0
—Cleopatra ..	14 0–16 0
—Cox's	25 0–27 6
—Jonathan ..	15 0–16 0
Apricots, crate ..	8 0–12 0
½ sieve ..	10 0–15 0
Bananas, singles	14 0–22 6
—doubles ..	20 0–25 0
Cherries—	
Half-sieve ..	8 0–12 0
"Boats" ..	7 0– 9 0
Box	1 6– 2 6
Currants—	
—Black, ½ sieve	12 0–14 0
—Red ,,	12 0–14 0
Figs special ..	12 0–21 0
best	6 0– 9 0
Gooseberries—	
—½ sieves ..	6 0– 8 6
Grapes	
—Belgian ..	1 6– 2 6
—Cannon Hall ..	6 0–18 0

	s. d. s. d
Grapes—	
—Hamburgh ..	1 6– 4
—English Muscat	4 6– 8
Grape Fruit—	
—Jamaica ..	20 0–30
Lemons—	
—Messina boxes	7 0– 9
,, cases	14 0–15
—Murcia ..	15 0–20
Melons, English and Guernsey, each	1 6– 4
Nuts—Brazils ..	45 0–47
Oranges—	
—Berna	18 0–30
—Californian ..	16 0–18
—South African	15 0–18
Peaches—	
—English, doz. ..	4 0–18
Pineapples, case	14 0–40
Plums —	
—Spanish, crate	12 0–14
—Californian ..	16 0–18
Strawberries spec.	8 0–12
,, best	4 0– 6
Southampton 3lb baskets	3 6–
,, 2lb	3 0– 4

REMARKS.—Considering the unfavourable weather trade has been fairly good, most departments reporting considerable business, although prices in some instance have been unstable. Apples from Australia, Ne Zealand and Tasmania are slightly easier in value but a good demand is maintained for these fruits Choice fruits, such as Grapes, Peaches, Nectarines, Fig and Melons have, perhaps, been most affected by th dull weather, and their values are lower. Gooseberries have varied in price, according to the exten of the competition with Dutch-grown Gooseberries Strawberries are more plentiful, and show a shar decline in prices. Cherries from France and Apricot and Plums from Spain have sold well. Tomatos ar increasing in quantities daily, and are quoted compara tively cheaply for the time of year. The Cucumbe trade has not been brisk, but values have been fairly steady. Peas are more plentiful, and some good pod from out-of-doors are now arriving. French Bean are cheaper. Marrows are scarce and dear.

Plants in Pots, etc.; Average Wholesale Prices

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz. ..	10 0–18 0
—elegans ..	10 0–12 0
Aralia Sieboldii ..	10 0–12 0
Araucarias ..	30 0–48 0
Asparagus plumosus ..	12 0–15 0
—Sprengeri ..	12 0–18 0
Aspidistra, green	48 0–72 0
Asplenium, per doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Boronias ..	21 0–27 0
Cacti, per tray, 12's, 15's ..	5 0– 7 0
Crassulas, 48's pink, per doz.	24 0–30 0
red, ,,	24 0–30 0
Crotons, per doz.	30 0–42 0
Cyrtomium ..	10 0–15 0
Erica	
—candidissima	21 0–24 0
—Cavendishii ..	30 0–36 0
—magnifica ..	36 0–42 0
Heliotropes ..	12 0–15 0

	s. d. s.
Hydrangeas white & pink,	
—48's, doz. ..	15 0–24
Marguerites, per doz.	12 0–18
Mignonette ..	10 0–15
Nephrolepis, in variety ..	12 0–18
—32's	24 0–36
Palms, Kentia ..	24 0–30
—60's	15 0–18
—Cocos ..	24 0–36
Pelargonium ..	18 0–24
Pteris, in variety	12 0–21
—large 60's ..	5 0– 6
—small	4 0– 4
—72's, per tray of 15's ..	3 6– 4
Roses Polyantha 48's, per doz. ..	24 0–30
—Ramblers, various sizes ..	7 6–20
Spiraeas ..	18 0–24
Stocks, White & Coloured ..	12 0–15
Verbenas, Miss Willmott 48's	15 0–18

REMARKS.—There has been a gradual fall in price for most subjects owing to the increased supplies Cornflowers, white Pinks, blue and white Nigella an yellow Marguerites. The newest subject to arrive Scabiosa caucasica. Delphiniums and large-flowere Gladioli look very attractive. High prices are maintained for best blooms of Carnations, the supplie being still below the average, and best blooms ar soon sold. Good blooms of Sweet Peas are scarce, an supplies very irregular. Roses are a much better trad and prices for these flowers are again normal; th dull weather is most favourable for dispatching the blooms to provincial traders. Lilium longiflorum offered at reduced prices; large supplies of this flowe are being received from the growers. Richardia (Arums) are gradually finishing. Double white Pyrethrums and white Stocks are selling very free Outdoor Irises are now offered in better conditio Consignments of French flowers consist of a f Paeonies, Marguerites and mauve coloured Statice.

GARDENING APPOINTMENTS.

Correction.—Mr. G. HAWES points out that h appointment as Gardener to Mrs. COWLEY is Wayside, Tubney, Abingdon, and not as printed page 328.

Mr. P. McOnie. for the past two and a half ye Gardener to the EARL OF AIRLIE, Cortachy Cast as Gardener to Sir ERNEST WILLS, Meggernie Cas Aberfeldy. Perthshire.

THE
Gardeners' Chronicle
No. 1905.—SATURDAY, JUNE 30, 1923.

CONTENTS.

Aldenham House Gardens 359
Ants, to destroy large red 366
Books, notices of—Secretarial Practice ... 360
Crombie, Mr. David ... 360
"Gardeners' Chronicle" seventy-five years ago 360
French fruit-growers' visit to England ... 360
Gardener's wages ... 366
Iris Marjorie Tinley ... 361
Lathyrus ordoratus zeylanicus 364
Liverpool's fruit and vegetable markets ... 360
Neill, Dr. Patrick ... 366
Oxford Physic Garden, Tercentenary of ... 359
Plants new or noteworthy ... 365
Pear midge, the, at Droitwich 366
Potatos, sale of early, in Ayrshire 359
Propagation of difficult plants 361
Rock garden, What is a? 366
Rothamsted Experimental Station 364
Scotland, garden notes from S.W. 363
Salvias 361
Societies —
Royal Horticultural 366
Strawberries "red plants" disease in ... 360
Tomatos, a new disease of 359
Wallace, Alfred Russel, memorial to 360
Week's work 362
Wisley, notes from ... 363

ILLUSTRATIONS.

Crombie, Mr. David, portrait of 360
Iris Marjorie Tinley 361
Paeonia Emodi forma 365
Psilotum triquetrum 363

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.1°.

Actual Temperature :—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 27, 10 a.m.: Bar., 30.3; temp., 63°. Weather—Dull.

The Tercentenary of the Oxford Physic Garden.

Fine weather, a distinguished company of horticulturists and botanists, and a charming setting beneath the trees of the walled Botanic Garden, made the ceremony of celebrating the Tercentenary of the establishment of the Oxford Physic Garden both happy and memorable. It is indeed well that the foresight and generosity of the pious founders of such University Institutions should be commemorated, first because of their own worth, and secondly, *pour encourager les autres*; for in these days of rapidly advancing science and diminishing revenues, the need for pious benefactors was never greater than it is at present. The ceremony was presided over by Lord Curzon, Chancellor of the University. His address was one which appealed especially to gardeners. Surveying the gardens, and approving the scene of tranquil beauty that they present, Lord Curzon traced in brief but sure manner the changes in garden design which have taken place in this country since the far-off days—three centuries ago—when Henry, Lord Danvers gave the site of the Oxford Botanic Garden, and provided the means whereby it was enclosed by the stately freestone walls which to this day give both shelter and beauty to it. Lord Curzon was followed by Sir David Prain, F.R.S., late Director of Kew, who reviewed briefly and graphically the history of the Gardens from the day of their foundation—St. James' Day, July 25, 1622—to recent times. He paid a tribute, as generous as well deserved, to the first custodian of the Gardens, Jacob Bobart, who, appointed in 1637, immediately made the Physic Garden famous, establishing in it no fewer than 3,000 several sorts of plants "for the honour of our nation and Universitie and service of ye Commonwealth." The first Professor, Robert Morison, was not only a distinguished botanist, a pioneer in the study of systematic botany, but also a gardener. Bobart the younger succeeded him, and completed Morison's *History of Plants*. Of the other gardeners who have laboured and left their mark on the Gardens the names of Baxter, and Baker—the present Superintendent—deserve mention. The fomer has left a permanent mark in the gardens of Oxford, and the latter has done a great work in preserving the traditions, and exercising remarkable cultural skill in conditions which those who know the gardens best recognise as being by no means easy. Of modern holders of the Sherardian Professorship of Botany, mention must be made of Daubeny—whose name is honoured in the present Daubeny laboratory; Isaac Bayley Balfour, who, though he only occupied the chair for a short time, displayed that enterprise and vigour and skill in administration which distinguished him throughout his life; Dr. Sidney Vines, the distinguished physiologist; and the present professor, Sir Frederick Keeble.

Although of no large extent, the Botanic Gardens contain many interesting and valuable specimens. Of them, those in the Lily house were greatly admired, and testify to the cultural skill and good taste of the Superintendent. No fewer than twelve species of Nymphaeas are growing in the larger tank, which is the chief feature of the house. They include the beautiful and exquisitely scented dark blue Water Lily, Nymphaea zanzibariensis, and the light blue N. gigantea and N. stellata; N. dentata with large flowers and vigorous growth, the deep red N. Lotus rubra, N. devoniensis, N. hybrida, and rose-coloured varieties of N. zanzibariensis. As a background to the Water Lilies in the tank are superbly-grown clumps of Nelumbium speciosum, Cyperus Papyrus, and other plants of luxuriant growth. The interesting trees growing in the gardens deserve, and should have, a chapter to themselves, but no reference to the garden, however brief, may omit the gigantic specimen—one of the tallest in the country—of Sophora japonica, which spreads its great branches just opposite the beautiful Inigo Jones gateway which gives access to the garden. Needless to say, the opportunity presented by the large extent of wall has not been neglected, and the number of interesting plants which grow in this shelter is considerable. Among them may be mentioned the Chinese and Japanese shrubby climbing Akebias, A. quinata and A. lobata; the pale form of Ceanothus rigidus (var pallidus) which is somewhat tender; the yellow Rosa hemisphaerica, which, though it has been long in cultivation, is rarely met with owing to its tender habit; Veronica Hulkeana, perhaps the most graceful of all Veronicas, its slender sprays of pale mauve flowers showing at their best against the weathered freestone of the wall; Carpenteria californica, none too hardy; the free-growing Solanum crispum, and the no less free Actinidias, A. polygama and A. chinensis; the attractive Osteomeles anthyllidifolia; Lonicera Henryi, the silk vine, Periploca graeca; the rare Schizophragma hydrangioides, and the large, dark-leaved Loquat, Eriobotrya japonica, worth growing for its noble foliage. These and the fine collection of succulents attracted the attention and admiration of the guests at the Tercentenary celebrations. After interesting addresses by Sir Herbert Warren, the Chairman of the Curators of the Botanic Garden, and Professor Seward, of Cambridge, the formal proceedings of the Tercentenary terminated, and the guests, numbering upwards of five hundred, were conducted over the laboratories and the Herbarium, the latter under the enthusiastic care of Dr. Druce, who continues to add to the large and valuable collections of plants for which it is famous throughout the world.

Aldenham House Gardens.—The Hon. Vicary Gibbs has again kindly consented to the opening to the public of the gardens of Aldenham House on the Saturdays of July, August, and September, and on August Bank Holiday, on the same conditions as in previous years, viz., that children must be accompanied by a grown-up person, and that dogs will not be admitted. These facilities will not be available on Saturday, July 7, as this is the date of the Annual Floral Fête of the Elstree and District Horticultural Society at Aldenham Park, when admission is only by payment.

Phytopathological Excursion to Wye.—Members of the British Mycological Society, will visit the South Eastern Agricultural College, Wye, on Saturday, July 7, where Mr. E. S. Salmon, head of the Mycological Department, will conduct the party. The Principal and Governors of the College have kindly invited members to lunch and tea. All intending to take part in the excursion should inform the General Secretary, Mr. J. Ramsbottom, by July 4.

Presentation to Mr. James Sweet.—A very pleasant ceremony took place at White Lodge, Whetstone, Middlesex, on the 15th inst., when a handsome clock with Westminster chimes, which had been subscribed for by some of his old pupils, was presented to the veteran, Mr. James Sweet. Mr. Frank W. Ladds, of Swanley, who made the presentation, recalled the pleasant days spent under Mr. Sweet's tuition. and said Mr. Sweet was one of the finest growers of pot plants. Mr. Milton H. Hutchings, Hillingdon Heath, stated that whatever success he had attained was entirely due to the sound advice of Mr. Sweet, as to the building of glass-houses, the growing of produce, and the treatment of nursery accounts, especially as regards writing off depreciation. Mr. Alex. James Monro stated that not only had he received an excellent and thorough training under Mr. Sweet, in everything appertaining to a nursery, but Mr. Sweet's management of men, his patience and self-control, had been an example which had greatly benefited him and many others in conducting their own businesses. Mr. Sweet, who was deeply affected, expressed his great appreciation of the kindness shown to him by so many of his old pupils, and for the handsome gift, and wished success to all those who had at any time served under him. Mrs. J. Sweet, Mr. Sweet's two daughters and three grandsons, Graham, Andrew and Lionel Sweet (who are now carrying on the business and upholding the high traditions of the firm), and Mr. Charles Hosegood, of Messrs. J. and E. Page, Covent Garden, were also present, and many letters were read from old pupils who had shown their pleasure in subscribing to the presentation, but who were, unfortunately, prevented from being present at the interesting ceremony.

Large Consignment of Seeds to the Antipodes.—Messrs. Sutton and Sons, of Reading, have recently despatched a large consignment of agricultural seeds to their New Zealand agents, Messrs. J. G. Ward and Co., Ltd. The seeds, together with the packages, which included 25 galvanised iron tanks, had an aggregate gross weight of 36 tons, and eleven railway waggons were required to convey the seeds to the docks.

Early Potato Sales in Ayrshire.—Early Potatos growing on farms in South Ayrshire were offered for sale on June 22, and, although the prices were far below those obtained three years ago, they ranged from £24 to as much as £72 per acre. On one farm 145 acres sold for an average price of £44 per acre; on other farms the average price per acre was £40 7s. and £60 3s. The variety mostly grown is Epicure.

French Fruit Growers' Visit to England.—A representative body of French agriculturists from the Rhône Valley will visit England next month for the purpose of conferring with railway and shipping authorities regarding the fruit trade, in which these growers are chiefly interested. All arrangements for the visit are being made by M. Raynaud, chief of the Agricultural Department of the Paris, Lyons and Mediterranean Railway Co., and M. de Kerdrel, the London representative of the company. The party will leave Paris on Sunday, July 1, and proceed to Boulogne to inspect the loading of cargoes for the South-Eastern and Chatham Railway and the Bennett Steamship Company. At Folkestone the unloading of the cargoes will be witnessed and the party will then travel to London on the fruit train. In the early hours of July 2 the travellers will see the goods unloaded at Gravel Lane, and later, watch their disposal at Covent Garden. The inspection of the Borough and Spitalfields Markets will take place on July 3. The party will proceed to Hull on July 4, and the following day will be chiefly spent in inspecting the docks and the unloading and checking of consignments of fruit, but will meet the members of several trade organisations during the afternoon before returning to London. Friday, July 6, will be devoted to Covent Garden and a meeting held under the auspices of the National Federation of Fruit and Potato Trades' Association and the London Markets' Association. There will be a visit to Chelmsford on Saturday, July 7, to inspect Messrs. W. Seabrook and Sons' Nurseries and fruit plantations, and early on Sunday, July 8, the party will commence its return journey to France.

Liverpool's Fruit and Vegetable Markets.—The *Report* of the Clerk and Superintendent of Markets, Liverpool, for 1922-23 shows that the quantity of fruit which was dealt with in the City's wholesale fruit market constituted a record, resulting in a profit, on a 15 months' basis, of £11,343 0s. 10d. New revenue derived from this market over a period of twelve months amounted to £4,402. The income of this market in 1918 was £4,569; in 1920 it was £7,726, this latter sum being nearly doubled in 1921, when the amount was £14,102, whilst in the period 1922-23 already referred to the income amounted to £18,344. The wholesale vegetable market shows increases almost as remarkable as in the case of the fruit market. In 1918 the estimated tonnage of the produce brought to the market was 37,604; in the 15 months 1922-23 it had grown to 120,754 tons, the value being £3.053 and £6.875 respectively. As the expenditure in 1922-23 only amounted to £4.076, there was a surplus sum of £2,799. The Liverpool markets collectively returned a profit of £57.165 5s. 2d., which sum has been available for the relief of the rates.

The Duties of a Company Secretary.—The Manual of the Chartered Institute of Secretaries. entitled *Secretarial Practice*,* will be found invaluable to secretaries of limited liability companies, whether experienced or not, for to the secretary of many years' standing it provides a reference book on many points which cannot remain permanently in the memory, and to the beginner it represents an efficient guide along a path beset with difficulties to one who tries to tread it alone. The new edition, besides the matter to be found in the earlier one, is provided with chapters on accounts. share warrants, the liquidation and reconstruction of companies, and how to fill in income tax and corporation profits tax forms—this latter will be a boon to many a worried secretary who has tried in vain to obtain any useful information from official sources. The instructions on the formation of companies, both public and private, are very clear, and will be appreciated by people accustomed to dealing more with the practical than with the administrative side of their businesses. The set of model forms is excellent, and the new form of Power of Attorney skilfully drawn up. In passing it may be observed that the common Form of Proxy, although given in "Table A" and in most companies' own articles, might usefully find a place among the other forms, for the sake of completeness.

Mr. David Crombie.—The many friends of Mr. David Crombie will be interested to learn of his retirement from the charge of the Marquis of Waterford's beautiful gardens at Curraghmore, Co. Waterford, Ireland. This fine old gardener, who has been at Curraghmore for twenty-three years, commenced his gardening career as an apprentice in the gardens at Yester House, East Lothian, under the late Mr. Shearer. On the expiration of his apprenticeship he passed on to the Earl of Rosslyn's garden at Dysart House, Fife, where Mr. Pirrie, then gardener, excelled with very extensive bedding-out schemes—this phase of gardening being then in its hey-day. Leaving Dysart, he went to the gardens at Niddrie-Marischal, under Mr. Gordon. He eventually became foreman under Mr. A. McLeod at Newbattle Abbey, the Midlothian seat of the Marquis of Lothian, and after a further period spent as plant foreman at the Earl of Balcarres' seat, Haigh Hall, Wigan, where indoor plants and fruits were specialities, and where Pines were well cultivated, Mr. Crombie, still seeking experience, served for a season amongst the famous trained specimen plants of Mr. B. S. Williams' nurseries at Holloway. From there, to widen his knowledge of Grape growing, he journeyed to the Channel Isles to take up a position in the St. Lawrence Vineyards, Jersey, Returning to England, he spent three years as foreman at Netherby Hall, and was then appointed gardener to C. H. Scott-Plumer, Esq., at Sunderland Hall, Selkirk, where he remained for five years. At the end of this period Mr. Crombie was offered and accepted the charge of Viscount Powerscourt's garden at Powerscourt, Co. Wicklow, and its wonderful collection of shrubs and Conifers remained under his care for fourteen years, and then, in 1900, he was appointed to the care of the gardens at Curraghmore. During the twenty-three years spent at Curraghmore Mr. Crombie has carried out extensive alterations and improvements, besides planting a representative collection of hardy shrubs, some of which have developed into magnificent specimens. He also planted a large collection of Apples and Pears, all of which bear witness to his careful and enthusiastic culture. On March 31 of this year Mr. Crombie, as he himself quaintly put it, "handed in his spade," and the Beresford family marked their appreciation of his services by awarding him a handsome pension, whilst his fellow workers on the estate presented him with a gold watch as a token of their esteem. Mr. Crombie is now residing with his daughter, whose husband, Mr J. McWhan, has recently been appointed gardener to Capt. Foljambe at Osberton Manor. Nottinghamshire.

MR. DAVID CROMBIE.

Memorial Portrait of Alfred Russel Wallace.—On Saturday, June 23, a memorial portrait of Alfred Russel Wallace, a fellow worker with Darwin, was unveiled at the Natural History Museum, South Kensington.

"**Red Plant" Disease in Strawberries.**—Messrs. E. Ballad and G. S. Peren, of the Research Station, Long Ashton, Bristol, write :—"With reference to the article on "Red Plant" in Strawberries, by Capt. R. Wellington, which appeared in the issue of *The Gardeners' Chronicle* of May 29, 1920, this condition has been identified as a phase of the already well-known 'Cauliflower' disease, sometimes called 'Bunch,' due to attacks of the eel-worm, Aphelenchus fragariae, Ritz. Bos., the less frequently occurring 'Cauliflower' stage being the only symptom recognised up to date. A detailed article setting forth the evidence which has led us to this conclusion is appearing shortly."

Appointments for the Ensuing Week.—Sunday, July 1: Wakefield Tulip Society's meeting. Tuesday, July 3: Sevenoaks Chrysanthemum Society's meeting; Streatham and District Rose and Sweet Pea Society's exhibition; Royal Caledonian Horticultural Society's meeting; Royal Tunbridge Wells Horticultural Society's show (two days); Royal Agricultural Society of England's show at Newcastle (four days). Wednesday, July 4: Lewes and District Horticultural Society's meeting; Tooting and District Horticultural Society's show; Eastbourne Horticultural Society's Sweet Pea Show (two days). Saturday, July 7: Elstree and District Horticultural Society's show; Blackburn and District Horticultural Society's meeting.

"**The Gardeners' Chronicle" Seventy-five Years Ago.**—*Kew Gardens.* I do hope that the suggestions which your contributor made some time since in respect to these gardens may, on one point at least, be responded to by the authorities. I allude to the keeping of the gate fastened which separates the Botanic Gardens from the pleasure grounds. The latter will be open from Midsummer Day to Michaelmas Day, on Thursdays as well as Mondays, until dusk. And on the former days, when both the gardens and grounds are open, I really can conceive no plausible reason why there should not be free passage between the one and other at all hours, or why, when the Botanic Gardens are closed at six, the people visiting them should not, if they please. go through the gate for a cool evening ramble in the pleasure grounds, instead of going a mile or two round for the same purpose. No additional expense would be incurred, for the same man, who now stands on guard to see that no one climbs over the said gate, may just as well play the polite by its side while it is open. And it is not that there is a difference of admission to the respective grounds; the very same individuals have the same privilege of admission to both. Why then should not this much-wished-for boon be cheerfully and gracefully conceded at once? *Hortulanus, June* 15. *Gard. Chron., June* 24, 1848.

Publications Received.—*Carnation Culture Up-to-Date.* By Montague C. Allwood. Cable Printing and Publishing Co., Hatton House, Great Queen Street, W.C. Price 2s. 6d.—*Secretarial Practice.* Prepared by the Council of the Chartered Institute of Secretaries, in conjunction with His Honour Judge Sherwell Cooper. W. Heffer and Sons, Ltd., Cambridge. Price 9s.—*Botanical Society and Exchange Club Report for* 1922. By G. Claridge Druce, LL.D., Secretary. T. Buncle and Co., Market Place, Arbroath. Price 10s.—*The Glory of the Garden.* By M. G. Kennedy-Bell. A. and C. Black, Soho Square, W. Price 5s.

**Secretarial Practice: The Manual of the Chartered Institute of Secretaries.* Second edition, revised and enlarged. Prepared by the Council of the Chartered Institute. Cambridge: W. Heffer and Sons, Ltd. Price 9s. net.

THE PROPAGATION OF "DIFFICULT" PLANTS.

(*Continued from p. 333.*)

ASTRAGALUS POTERIUM.

This spiny Leguminous xerophyte is an ideal plant for a rock garden, and forms a dense cushion. Many find difficulty in propagating this plant from cuttings, but much of the success depends on the length of the cutting taken. Cuttings should, therefore, never be longer than 1 inch to 1½ inch long, as it will be found after that length is passed that the stem becomes very woody and they take a very long time to root. The shorter the cuttings the more quickly they root, but it has been found in this garden that those about an inch long are of the most successful length. The best time of the year to take the cuttings is July and August, when there will be no difficulty in getting 75 per cent. to 80 per cent. rooted.

This plant roots very quickly in a sun-frame. Cuttings inserted in July are ready for potting early in September. The August cuttings usually root in October, but a few may root in late September. If, however, the cuttings are placed in a cool frame they take from six weeks to two months longer to root.

These remarks apply equally to Astragalus massiliensis.

RESTIO SUBVERTICILLATUS.

This lovely plant is a native of South Africa, and although not hardy here is a very graceful subject for the cool greenhouse.

The plant growing in Edinburgh must have been the source of its distribution in this country. It is a male plant, and I do not know of a female plant in Great Britain. Being a male it must therefore be propagated by cutting, and when the plant reaches a good age, rooted young plants may be found along the stems, formed on the grass-like, lateral branches. Advantage was taken of this habit to increase the stock here until recent years. Of course, few people have a plant of sufficient age to produce rooted plants on the stems.

Propagation may, however, be effected by selecting the young grass-like shoots of a plant a few years old, from near the base of the upright stem. It is better to prepare the branches a month or two before growth starts by cutting 1 foot to 15 inches from the ends of the branches. This checks the flow of sap and forces the lateral branches into strong growth. By keeping the branches moist with a watering-can or syringe the young stems are softened, and they root more readily. The parts of the stems which are cut off may be used for decorative purposes.

After the cuttings have been removed from the parent plant the best method is to pot them individually in thumb-pots in pure sand. They should then be placed in an intermediate propagating frame having a temperature of 60° to 65°.

The cuttings should be kept well watered and on no account allowed to get dry as the Restio resents drought at any time. The cuttings will root about the third month after insertion, but much depends on their vigour. Weakly cuttings very seldom, if ever, root, and therefore only the strongest ones should be potted.

After they have rooted it will be found that the roots have formed a nice mat round the edge of the pots. The sand should then be substituted by ordinary compost, the young plants being left in this until they have taken hold of the soil, when they may be moved into a greenhouse or cool frame.

Pot plants of Restio subverticillatus are very decorative for greenhouse or indoor decoration.

ANACYCLUS FORMOSUS.

A number of years ago cuttings of this plant were presented to this garden by A. C. Bartholomew, Esq., Reading, as being difficult to propagate. For a short time they proved to be very stubborn under the treatment given them in the cool propagating case, where the conditions seemed ideal for many of the other woolly-leaved composites of a similar nature.

After a period had elapsed and no result was obtained, several of the cuttings were transferred to the sun frame, and after a few days of bright sunshine they presented a very dead-looking appearance. They were on the point of being thrown out, but on examination it was discovered that the lateral buds on the stem below the level of the sand had started to grow, and within a month several had rooted. The remaining cuttings in the cool case were then transferred to the sun frame and all rooted in a similar manner.

Potting was done as quickly as possible, after which the young plants were again placed in the sun frame until they began to establish themselves. The potting compost consisted of half loam, one-quarter sand, and one-quarter crock dust. Anacyclus formosus seems to like a stony or sandy place to grow in, and therefore requires an open compost. After potting, the young shoots very soon made their appearance above the soil. It was necessary in bright weather to cover them over during the day with a piece of newspaper laid loosely over the top of the young plants, in order to prevent the young shoots from burning, which very soon takes place if this precaution is not carried out.

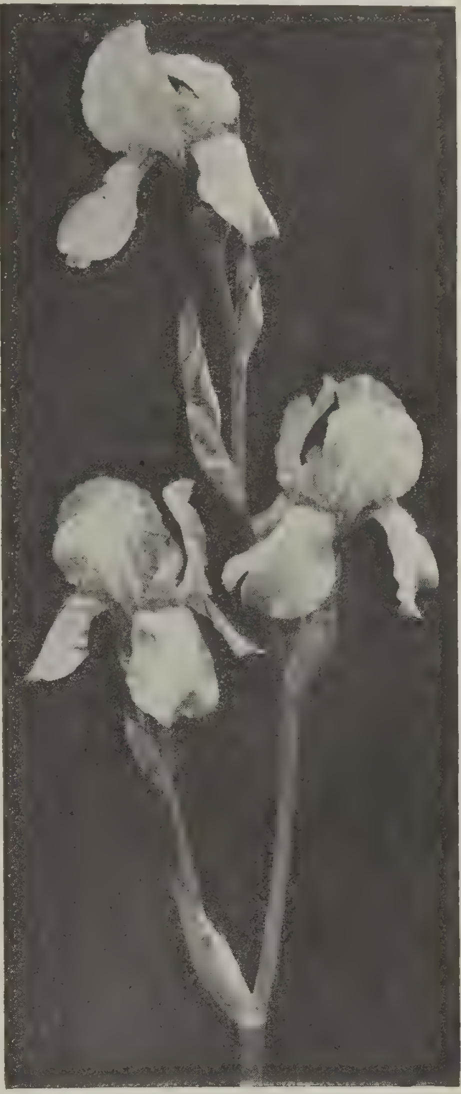

FIG. 170.—IRIS MARJORIE TINLEY.

Anacyclus formosus is the exception to the rule with regard to rooting cuttings successfully in a sun frame. I have tried cuttings of all the hairy-leaved plants belonging to the Natural Order, Compositae, which are growing here in the sun frame, and have had very poor results. Many root if the weather is not too sunny, but they become so weak and need so much nursing before they are good plants ready for planting out that they are better treated in the manner described above. *L. B. Stewart, Royal Botanic Garden, Edinburgh.*

IRISES.

IRIS MARJORIE TINLEY.

The beautiful Iris illustrated in Fig. 170 was raised by Mr. Amos Perry, who considers it one of his finest novelties, of which he has a considerable number, derived from several thousand crosses made during the past few years. The variety under notice is exceedingly tall—well over 4 feet. The mother parent, a seedling pallida Iris growing in Mr. Perry's home garden, is of exceptional size and vigour, and, besides Marjorie Tinley, has given other progeny of great promise, and with tall spikes and large flowers. The flowers of the variety illustrated have arching standards of a pleasing lavender blue, with a soft yellow sheen; the falls are dark mauve, and they are beautified by a conspicuous yellow crest. The spike branches freely, and a typical inflorescence bears a goodly number of the beautiful blooms. The variety is classed amongst those that flower in mid-season.

SALVIAS.

Salvia splendens and its varieties are very useful for autumn flowering, and they will continue in bloom for a long time in the conservatory.

Where large specimens are required the type, and its fine variety pyramidalis, are best; the variety violacea has violet-purple flowers. Where smaller plants are required for the plant stages, one of the good dwarf varieties, such as Glory of Zurich, should be selected. This variety comes into flower quickly, and stock raised from cuttings at this time make useful plants for the autumn.

Those intended to be grown as large specimens should now be put in their flowering pots, when they should be stood out of doors on a layer of ashes in an open situation, partly plunging the pots to prevent them blowing over. If preferred they may be planted out in rich ground; from which they may be lifted during September and repotted.

Salvia leucantha, S. rutilans, S. Greggii, S. involucrata var. Bethelii, S. azurea var. grandiflora, and S. Heeri are all useful species for autumn and winter flowering, although in the immediate neighbourhood of London they are very uncertain, as one night's fog usually spoils them.

Salvia rubescens is one of the finest winter-flowering species, but at Kew it always gets spoiled by fogs, and for this reason I tried sowing the seed during September; the resulting plants are now fine, large specimens, and are showing their flower spikes. *J. Coutts, Royal Botanic Gardens, Kew.*

THE ALPINE GARDEN.

SEDUM PILOSUM.

It was not surprising to observe the charming Sedum pilosum well represented at the recent Chelsea Show, although probably the majority of the visitors failed to notice it owing to its diminutive size and its position in front of the exhibits, where the crowds on the opening and second days prevented the smaller plants from being readily seen. This jewel among the Stonecrops is not common in cultivation, although it is by no means a scarce or expensive plant to procure. It has been extolled by some of the most critical writers of Alpine flowers, and one of the highest repute and of sometimes caustic criticism asserts that "it is perhaps the loveliest of the race."

Sedum pilosum forms charming cushions of small, rosetted foliage, its appearance resembling a Houseleek in some degree, and it produces inflorescences about two or three inches high, with many little wax-like flowers of soft pink.

This plant is, like many of the race, a rock-lover in its native mountains in the Caucasus and Armenia, and succeeds in a dry and sunny position in light soil, or in a moraine or wall garden. It has proved hardy, and may be raised from seeds or cuttings. *S. Arnott.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Vanda teres.—This charming Orchid is now in bloom, and as soon as the flowering period is over growth begins, when the work of re-potting may receive attention. In growing this plant it is advisable to fasten the stems to teak rods, or some other hard wood, to which the clinging roots may attach themselves. The stakes should be fixed firmly in the pot, which should be filled two-thirds its depth with crocks for drainage, filling the remainder with clean, chopped Sphagnum Moss pressed firmly. The stakes should be of sufficient length to allow for 18 inches or so of growth. The plants may either be placed singly in pots or several together to make large specimens. Where sufficient plants are grown, it is a good practice to plunge the pots in a bed of live Sphagnum Moss. This Orchid will withstand much sun heat, light, and moisture whilst making its growth. When growth is completed the temperature and amount of atmospheric moisture should be gradually reduced, and only sufficient water given the roots from time to time to prevent the plants shrivelling. During the hottest part of the day it is advisable to use a thin blind to prevent scorching. During the winter the plants are best rested in a dry Cattleya house, having a temperature of about 60°.

Vanda Hookeriana.—This Orchid and its hybrid Miss Joaquin, with plants of similar nature, such as Renanthera coccinea, will thrive under similar treatment to that afforded V. teres.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Fruit Pergolas.—The training of newly-planted trees will need constant attention. Central shoots of three-branched trees may be stopped to allow the even distribution of sap in the other growths. The young shoots should not be tied direct on to metal supports, but on Bamboo canes arranged perpendicularly against the wires as previously recommended. Only a small quantity of fruit, if any, should be allowed to remain on the trees their first season.

Fruit Packing.—Commencing with the Strawberry season, the packing of soft fruits for transit by road or rail, sometimes for long distances, has to be done in some establishments. One of the chief points is to pack firmly. Strawberries of first grade should be placed separately, each in a leaflet. Boxes are made to hold one and two layers. Peaches and Nectarines travel well in boxes with separate compartments for each fruit. With a proper adjustment of wood-wool, and each fruit covered with a piece of soft paper, these fruits should travel without damage. Peaches, Nectarines and Figs should not be quite ripe when they are packed for sending long distances; if desirable the probable dates when they will be ready for use can be sent with them.

Peaches and Nectarines.—Continue to train the shoots of Peaches and Nectarines as they develop, removing those not required. Shoots of undue length or those of a coarse nature should be stopped. A final thinning of the fruits should be done, if required. At no time should the trees suffer from dryness at their roots, or red spider will soon spread, and the fruits receive a check. Syringing or spraying the trees late in the afternoon will prove of great benefit, both to the trees and the fruit. Plums which have suffered from an attack of Aphis should be given every attention to enable them to make free growth and will derive considerable benefit also from spraying.

THE FLOWER GARDEN.

By G. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Violas.—These plants should have their dead blooms and seed pods removed frequently or their flowering will be seriously checked. Violas are blooming well this year, and the blossoms are lasting in good condition longer than usual, the cool weather suiting them. Strong two-year-old clumps are exceptionally fine, the tufts approximating in size to average-sized dinner-plates. The propagation of these tufted Pansies should be commenced by the third week in July, this being, I am aware, about six weeks or more earlier than is generally practised. Rooted thus early, more vigorous and bushy specimens are obtained than when the cuttings are struck at the end of September. Moreover, these plants may, if desired, be put in their flowering place in autumn, whereas the late-rooted cuttings are not developed sufficiently for planting then, except under the most favourable conditions. If on examination it is found that there is not a supply of shoots suitable for use as cuttings, encourage their growth by putting sandy leaf-mould in the hearts of some of the plants, water them on frequent occasions, and cut away part of the old growths if need be. By adopting these means, plenty of shoots will soon develop, many of which will be found, when severed, to have already made a number of roots. Light, sandy, soil is the best rooting medium for the cuttings.

Lilacs.—Grafted plants of Lilac should have all suckers removed, or they will stunt the growth of the grafted part of the bush. If, however, the Lilacs are on their own roots, these suckers should be encouraged to develop. In the event of an excess of these latter shoots, pull up one or two and plant them elsewhere to form shrubs similar to those from which they have been detached.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Chorizema.—Young plants of Chorizema should be potted on as they require more root room. The compost should consist of half light loam and half peat, with sufficient sand to render the soil porous. The pots should be well drained, and firm potting is essential. Young plants should be stopped frequently to promote a bushy habit. Large specimens trained on trellises or around stakes are very showy for the conservatory, and last in flower a long time. They are seen at their best when planted out in a well-drained bed or border in a conservatory. The stronger-growing species are excellent for furnishing pillars or covering low walls. They are propagated by means of half-ripened twiggy shoots inserted in pots of sandy peat, standing them under bell glasses in a cool house. There are not many species in cultivation, the best being C. ilicifolia and C. cordata, of which there are several varieties.

Souvenir de la Malmaison Carnations.—As these plants pass out of flower, strong, healthy specimens should be selected for layering. This is best done in cold frames, turning the plants out of their pots and planting them in a bed containing plenty of sand and leaf-mould. If the plants are heeled over on their sides the operation of layering will be rendered much easier. When the layers have been made and pegged to the ground, they should be well watered to settle the soil about them. The frame should be kept fairly close and warm for a week or two; gradually admitting more air as rooting progresses. In establishments where large specimens are desired, a suitable number of young plants that have finished flowering should be retained for potting on. The potting compost for such plants should consist largely of good mellow loam that has been stacked for some considerable time, with sufficient sand or old mortar rubble to render it porous; adding a six-inch potful of bone meal to every bushel of soil. Water the plants with extra care until the roots are well established in the compost.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Strawberries.—With the close of the forcing season of pot Strawberries, preparations for next year's forcing should be commenced. The best runners for early fruiting are obtained from plantations made the previous year, from plants which have not been allowed to flower. When sufficient runners are available, their layering may be done forthwith. It is a matter of opinion whether the layers should be placed direct in the pots in which they will fruit, or in small pots or pieces of turf, to be transferred to the fruiting pots in July and August. I prefer to layer direct in the pots 6 inches in diameter, and they should be crocked carefully to ensure good drainage. A sprinkling of soot over the crocks will act as a deterrent to worms entering the drainage holes. The compost should consist of turfy loam, slightly on the heavy side, roughly pulled to pieces, bone-meal, and a good sprinkling of wood-ash or burnt garden refuse. The plants set apart for the production of runners should be watered copiously during dry weather. King George V. and Royal Sovereign are two excellent varieties for forcing, and President is a good sort for later cropping.

Cucumbers in Frames.—Cucumbers planted in beds of fermenting material and afforded adequate protection during cold nights should soon be bearing freely, and with careful management will continue to do so throughout the summer months. Frames may be utilsed in which Potatos or other vegetables have been forced. These may be cleared and planted as they become available. On warm, bright mornings ventilate the frame early, but place the light in position again early to secure a temperature of 85° to 90° at closing time. Syringe the plants thoroughly as a preventive of red spider, for if this pest spreads it will soon destroy the plants. Material from a spent Mushroom bed spread over the surface of the soil will have a beneficial effect on the well-being of the plants. The roots should not lack moisture, and when applying water use it warmed to a temperature of about 85°. Train the young growths thinly to allow space for training in the lateral shoots, which should be stopped closely, rubbing off growths that are not required.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Endive.—The ground about early Endive should be kept well hoed, and the plants well watered in the absence of rain. The ridges between rows of Celery form an excellent site on which to grow early Endive, and another sowing may now be made on ground that has been cleared of early Potatos or Peas. Broad-leaved Batavian is the best kind to sow for late autumn and winter use. Treat the plants as advised for the early sowing.

Onions.—Where Onions are required to produce large bulbs, every attention should be given the plants to encourage them to make free growth. Mulch the bed with sifted manure from an old mushroom bed, and, if necessary, water the soil copiously. Onions sown out-of-doors should be thinned before they become too large. Dust the rows with soot, and water the soil to settle it about the plants. Keep the surface soil between the rows loose by hoeing.

Brussels Sprouts.—Every effort should be made to have strong plants by the autumn, as only robust, healthy specimens will produce good "buttons" over a long period. Water those already planted, if they need it, and keep them upright by staking or earthing up in the same manner as for Potatos. Plants from a second sowing will now be ready for planting out, and should be set in rich ground and the soil kept well hoed to promote quick growth. These later plants will provide good sprouts in the early spring when the others are finishing. Sutton's Dwarf Gem is one of the best sorts for all gardens.

GARDEN NOTES FROM S.W. SCOTLAND

Erinus alpinus deserves all the praise bestowed upon it by your correspondent, *T.*, (page 319), for although it spreads far and wide, and appears to take possession of more space on the wall garden than is consistent with the safety of other Alpines, it interferes with their welfare no more seriously than does the yellow-flowering, annual Saxifraga Cymbalaria. Neither of these is strongly rooted, and both cast slender shade; it is easy to remove them if they encroach unduly upon feebler growths. In the note referred to *T.* writes only of the mauve-pink flower, which, I suppose, is the type; but the variety carmineus is a much prettier thing and comes true from seed. Its flowers are bright rose.

Far more serious to the welfare of other plants in the rock garden is the irrepressible spread of the Mexican Daisy, Erigeron mucronatus. As a persistent flowerer it has few equals, and would be valued for the long succession of crimson and white blossoms if only these were barren; but the myriad seeds take root in every available cranny—and such roots! The thin, wiry fibres of great strength thrust a foot deep and more between the stones, which have to be pulled down before the roots can be extracted. It is described in some gardening books as doubtfully hardy, which almost makes one wish for a really hard winter to kill it out; but I fear it has established itself too firmly to be ousted by any frost.

Primula burmannica is a recent addition to our list of whorled Primulas—at least that is the name under which Mr. Magor kindly sent me seedlings two years ago. It is a fine thing, after the style of P. japonica and P. Beesiana, but the whorls are more densely flowered; the colour is a rich red purple, with a large yellow eye. In one place we have it in fine contrast with P. helodoxa; in another it happens to have been planted under an eight-foot bush of Rhododendron villosum; the bush and the herb are flowering simultaneously and as the flowers of both are of the same strong colour, the arrangement is not felicitous. Of this Rhododendron Mr. Millais remarks that "the colour is more striking than beautiful." True, is comes dangerously near magenta, but viewed with sunlight striking through the blossoms, it is the hue of a pigeon's-blood ruby. R. villosum makes a fine companion to the sulphur-coloured R. triflorum, the two flowering simultaneously in June.

It is often a puzzle in jumbled borders such as we have here to avoid unpleasant clash of colour. It was only last week that, after many shifts, a fitting contrast was found for Hippeastrum (Habranthus) pratense, for so strident is the orange-vermilion of that splendid Chilian Amaryllid that it is out of place against many strong colours and makes more delicate tints look dingy. But the rich dark purple of Iris chrysographes holds its own well against the other, and so does the ultramarine of Cynoglossum nervosum.

It is somewhat surprising that more use is not made of Incarvillea for the early summer border. One would have expected that a plant as hardy as a Dandelion, as easily raised from seed, and with flowers as showy as a Gloxinia, would have been in constant demand; but in north-country gardens, at least, one seldom meets with it. This may be owing to the fact that I. Delavayi is so late of showing above ground that, unless securely and permanently labelled, it is sure to be uprooted or its tubers badly bruised and broken in forking over the borders. I brevipes (I am not sure whether it is not I. grandiflora) flowers three weeks earlier than I. Delavayi, is of lower stature, but quite as beautiful.

Never have I seen such a display of Primulas as is now at its height in Mr. McDouall's demesne at Logan. A broad carriageway that winds through a wood for a quarter or third of a mile between the garden proper and the sea is bordered throughout its length with myriads of P. japonica and P. pulverulenta, self sown, in every shade of rose and red, with pure white. The introduction of P. Bulleyana and P. helodoxa will be sure to extend the range of colour.

In mild districts near the sea Calceolaria violacea is well worth growing for the profusion of its bloom in May and June. The flowers, pale lavender and white outside, hang on their purple stems in such a position that the beauty of the interior is only revealed to bees and other flying things; but they are produced in such lavish abundance as to make the bushes very showy. The said interior presents a wonderful appearance under a lens, the lower lip being spread with a sparkling golden carpet and the back of the corolla richly spotted with purple, whilst the purple stamens, supporting large orange anthers, rise out of a touzle of white hairs. *Herbert Maxwell, Monreith.*

NOTES FROM WISLEY.

A good definition of a weed is "a plant out of place," for it may happen that a garden plant of outstanding beauty will flourish and increase to such an extent as to take possession of ground required for other plants, and in consequence has to be "weeded" out. This trouble is frequent in a rock garden where neighbour's landmarks are not defined, and particular plants require careful restraint from encroachment. It can be avoided sometimes by restricting plants of rampant growth to places where there is little soil, which may result in increase of flower.

In the Wisley rock garden, for example, Hieracium aurantiacum and H. rubrum, when they have any depth of soil, will spread at an alarming rate and make little show of bloom; but a patch of the latter, planted in a mere sprinkling of soil on a flat rock, is now flowering splendidly. Aquilegias, with notable exceptions such as A. Helenae, are a regular nuisance here, and though pretty enough in the wild garden they spring up all over the rockery, where they are out of place.

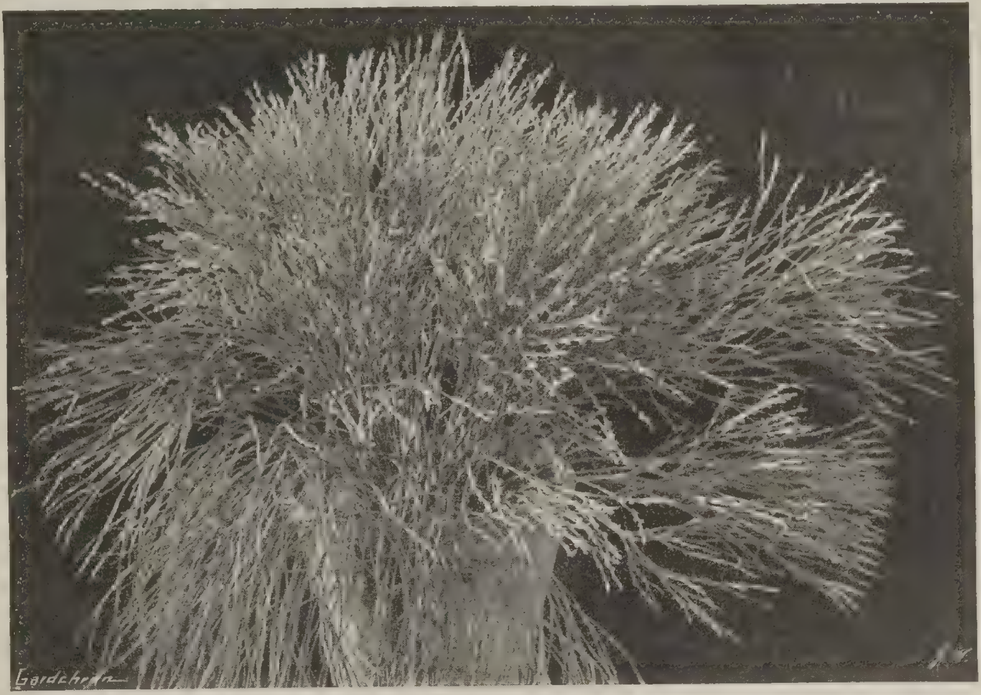

FIG. 171.—PSILOTUM TRIQUETRUM IN THE CAMBRIDGE BOTANIC GARDEN (SEE P. 365)

In spite of the time of year and adverse weather, or perhaps on the latter account, there is now a fine display of flowers in the rock garden, provided chiefly by Cistuses and Helianthemums. One of the largest and finest flowered of the Cistuses now blooming is C. × purpureus, with its big pink blossoms and dark blotches. Another blotched flower is the yellow C. formosus, of which there is a plain yellow variety named unicolor. Another beautiful species is C. crispus, with rosy lavender petals and a bright orange centre. A fine variety of the latter, with flowers of a deeper shade, is inappropriately named Sunset. Among the white-flowered species C. florentinus is very floriferous, while C. corbariensis is remarkable for its pink calyx, giving the shrub an attractive appearance before coming into flower. The white petals of C. salvifolius form a pronounced cup, reminding one of the flower of Ranunculus amplexicaule.

In the moraine, which has lately been remodelled, Dianthus alpinus and Asperula nitida are flowering freely, and on the sides of the adjoining paths Erinus alpinus is thoroughly at home and is spreading considerably. In the bog some big groups of Primula Beesiana, with its mealy stems, and flowers which are of a less fiery red than those of P. pulverulenta, are to be seen, also a very fine form of the yellow P. helodoxa.

One of the most exquisite of all the Primulas, P. nutans, of recent introduction and of very doubtful hardiness, was planted out in the open last autumn in a specially prepared rock bed. Almost immediately after it had taken up its outside quarters a sharp frost blackened the foliage and it was given up for lost. Happily, however, this did not prove fatal, and the plants have come up strongly this year, and are opening their flowers, which are nodding bells of a delicate blue and covered with a white meal.

Other good rock plants now in flower include the pretty blue Linum collinum, which is smaller but no less attractive than L. narbonense, and a broad-leaved, orange Poppy, Papaver pilosum, which has flower buds all up the stem. Remarkable massed colour effects are produced by the arresting Lychnis Viscaria splendens fl. pl. and Viola gracilis var. Mrs. Bowles.

A plant of Rosa multiflora, with pale pink flowers, was raised from seed sent by Farrer from Thibet. It is now in full bloom, as is R. fimbriata, with flowers like Carnations.

While shrubs such as Kalmias and Rhododendrons are now in flower in the wild garden, near relatives are making their new growth. This often produces colouring little inferior to the fine autumnal tints. Shrubs which are effective in this respect are Pieris japonica, the much larger Pieris formosa, Vaccinium ovatum and Gaultheria procumbens, which is putting forth bright red shoots. A less common species than the latter, Gaultheria pyroloides, is now flowering and showing promise of an unusually large crop of its white fruits, which are as large as Cherries. Pernettya mucronata is also flowering very well this year, and its white blossoms are conspicuous in the wild garden.

Under glass there is a good display of Salpiglossis, made by plants raised from seeds sown last August and grown in pots without heat. *J. E. G. White.*

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INSPECTION OF ROTHAMSTED EXPERIMENTAL STATION.

THE annual inspection of the Rothamsted Experimental Station was held on Wednesday, June 13, when, at the invitation of Lord Bledisloe, the Chairman of the Lawes Agricultural Trust, over 60 guests visited the fields and laboratories. Among those present were: Sir James Currie, Mr. and Mrs. T. H. Riches, Sir Matthew Wallace, Mr. J. H. Ismay, Mrs. Hugo Müller, the Earl and Countess of Strafford, the Marchioness Townshend and General Sir Richard Ruck, C.M.G.

Owing to the building operations now in progress the function was on a smaller scale than usual. It is the custom on these occasions to visit one or two of the classical fields and some typical new plots, as the extent of the experimental fields and the size of the laboratories make a complete inspection of both impracticable in the time available. The plots examined this year were selected to show how the classical experiments started many years ago by Lawes and Gilbert gave important information which can be utilised in laying out subsidiary experiments to provide data on a number of questions of immediate practical importance. The classical fields selected were Broadbalk and Hoos, which have been continuously under Wheat and Barley respectively for many years. The former field raises a number of problems in connection with the increases in crop yield to be expected from increasing amounts of nitrogenous fertiliser, and with the effect of time of application of fertiliser on the yield.

The quantities of fertiliser used annually on Broadbalk are greater than customary in modern farming practice, and the value of the Broadbalk results for statistical analysis would be greatly affected if any change in procedure were made. Additional plots are therefore laid out on adjacent fields, where these problems can be investigated. Among the experiments inspected was a set indirectly connected with the Broadbalk results, in which the residual values of various artificial and organic manures are tested over a full course rotation. The field is at present in Clover, and the outstanding result this year is the remarkable effect of farmyard manure, and especially of cake-fed dung. Work in the Bacteriological Department under Mr. Thornton indicates that the farmyard manure has a stimulating action on the nodule organism, and this effect is being further investigated.

The permanent Barley experiments on the Hoos field have for many years past shown that for Barley grown under these conditions phosphates have a pronounced effect in the early stages of growth and hasten the maturity of the plant. In connection with an extensive series of experiments conducted under a uniform plan at a number of centres throughout the country on the production of malting Barley it has been shown that the influence of soil and season may mask the above effect, especially as the Barley is not grown continuously on the same land, but forms one crop in a rotation.

The inspection of the field plots occupied the morning. After luncheon Lord Bledisloe briefly addressed the company. In the course of his remarks he laid stress on the efforts the Trust Committee and the Director, Sir E. J. Russell, were making to ensure as close a contact as possible between the farming community and Rothamsted—an association that would be for their mutual benefit. The results of these efforts so far had been most encouraging. Lord Bledisloe illustrated this part of the Station's activities by referring to the outside centres where certain typical experiments made for some years past at Rothamsted were being repeated on a definite plan. The work, although comparatively new, had been of great value, as it gave information on the extent to which the conclusions drawn from the Rothamsted experiments were modified under different soil and climatic conditions. After mentioning some of the practical problems that were being attacked in the laboratories, Lord Bledisloe reminded his audience that the work of the Station was not only to provide the practical farmer with information that he could utilise in his business. Its scope was more extensive than this, and in a sense it embraced the whole of the rural community and touched intimately the life of the landlord who farmed his own land, the tenant farmer, the agricultural colleges and the agricultural labourer. It was his aim to make the annual gathering at Rothamsted representative of these great interests, and for this reason he called upon three of his guests for any remarks or suggestions they might care to offer.

Sir Matthew Wallace said that, as a farmer, he was greatly indebted to the work of Stations such as Rothamsted. He had been farming since 1880; there was no time when the experiments and recommendations of agricultural scientists were more valuable to farmers than they were to-day. The present depression in agriculture was, in his opinion, no worse, if so bad, as that when he began farming. He was convinced that the remedy lay not in cutting down, but in extending the acreage under cultivation; if this were done, not in any haphazard way, but with due regard to the findings and advice of the workers in agricultural science, he had no doubt but that success would follow.

Principal Dunstan, of the Royal Agricultural College, Cirencester, then spoke of the relations between Experiment Stations and the Agricultural Colleges. As a teacher he knew how valuable this co-operation was to teaching institutions.

Mr. George Dallas, of the Workers' Union, said that he was more than gratified by the efforts now being made by the authorities to extend the educational facilities for farm labourers. Only by these means could they hope to keep the better class of workers on the land.

Sir E. J. Russell then reviewed the recent work of the Station. He referred in detail to the work now being carried on at the outside centres, and said that they were endeavouring to push their investigations beyond the usual limits of measurements of yield into the more difficult region of the quality of the crop. In the typical cases of malting Barley and Potatos the expert valuer recognised, and was prepared to pay for, differences in quality that, so far, could not be detected with certainty in the laboratory. With the two products mentioned their scheme of experiments included such valuations by experts of the crops obtained from their various plots both at Rothamsted and elsewhere, and, further, they had arranged for the malting of typical samples of the Barley and for cooking tests of the Potatos under the supervision of an expert London chef. He hoped that these tests would give the chemist and others a clue as to what line of investigation to pursue in the laboratory examination of the factors concerned in quality and their relation to manurial treatment. He also stated that considerable attention was being devoted to the problems of soil cultivation. The work was conducted both in the fields and in the laboratories. In the field, dynamometer measurements were made of the resistance to ploughing offered by soils of known manurial history, and the work was being extended to include the effect of implement design on the draught. The problems associated with the tilth were the subject of study in the Physical Department. Sir John had pleasure in stating that the Empire Cotton Growing Corporation was so convinced of the value of these fundamental investigations in their own problems that they had made a substantial grant to the Station for the extension of the work. The Director then briefly reviewed the other activities of the Station. He referred especially to the valuable aid they had received from Mr. E. D. Simon, who had placed at their disposal an extensive farm—Leadon Court, Herefordshire—on which they were studying the soiling system in detail.

At the conclusion of the Director's remarks the guests were conducted round the laboratories and were shown the nature of the work in progress.

LATHYRUS ODORATUS ZEYLANICUS.

THE SWEET PEA OF CEYLON.

THE question of the discovery of the Sweet Pea in the Island of Ceylon, as affirmed by Linnaeus, Miller, Curtis, and many others, has a fascinating interest for the student of Sweet Pea history, and is, apparently, as far off as ever from a satisfactory settlement. For more than a quarter of a century I have pursued the subject, both at home and abroad, but with very little definite result. At the same time many very interesting facts have been brought to my notice. These facts centre round the decade 1731-1740, during which period a specimen of the Painted Lady variety was included in a herbarium sent from Ceylon (at that time a Dutch East India Company's possession) by a collector named John Hartog, to Cornelus Vos, who was at that time Curator of the Botanic Gardens at Amsterdam. Before his death Vos presented this herbarium to John Burman, M.D., Professor of Botany in the Medical Gardens at Amsterdam, who included Lathyrus odoratus zeylanicus in his *Treasury of Ceylon Plants* published in 1737.

In this work the plant appears as follows:—*Lathyrus Zeylanicus, hirsutis, flore variegato, odorato, Herb. Hart.*, and Burman states, "This plant differs from the L. odorato of Cupani only in the variety of the flower, and since it has been well described and set forth in the *Hort. Medici Amstelodamensis*, Part 2, we do not further describe it here, since also in addition these plants are well known to all, since they frequently occur in our gardens."

Regarding the reference Herb. Hart., Burman states: "Hartog or Hertog is a herbarium which I keep, and which it is certain contains very many Ceylon plants sent once by him (Hartog) to Cornelus Vos, the gardener at Amsterdam."

As it is now well established that the Sweet Pea is not a native of Ceylon, the question naturally arises—how and where did Hartog obtain the specimen that he sent to Vos? I am of opinion that some official of the Dutch East India Company had obtained some seeds of this plant from Holland, where it was at that time very popular, and sown it in his garden, and that Hartog had seen it growing in the aforesaid garden, and, deeming it worthy of mention, had sent a plant home.

I am confirmed in this opinion by a somewhat similar case connected with another Dutch colony, which has been brought to my notice by Mr. A. J. Van Laren, the able Curator of the Botanic Gardens at Amsterdam. Writing to me on the question, "From what source did Linnaeus, Burman, and Miller obtain the Ceylon idea in the name of the Sweet Pea?" Mr. Van Laren writes: "I formerly corresponded in this matter with Dr. Hallier, one of the Conservators of the Government Herbarium at Leyden. I wanted to know something of that kind for my book on Sweet Peas which was published in 1916, and he informed me then that 'there is in the mentioned Herbarium a specimen of the L. odoratus collected by Blume in a garden at

Batavia,' so he thinks it is not impossible he species might be also cultivated in the 18th century in gardens at Ceylon, from where it was collected by Hartog."

Blume, born at Brunswick in 1796, was appointed, in 1822, Director of the Government Botanic Gardens at Buitenzorg, Java, of which Batavia is the capital. Returning to Holland in 1826, he became Professor of Botany and Director of the Government Herbarium at Leiden. He did much for the knowledge of the flora of the East Indies.

Some surprise has been expressed that, although Burman published his *Treasury of Ceylon Plants* in 1737, in which L. zeylanicus was quoted, Linnaeus did not include it in his *Flora zeylanica*, published in 1748. As, however, the latter work is merely a catalogue of the plants collected in Ceylon by Paul Herman from 1670-1677, this is easily accounted for. In his *Hortus upsaliensis*, published in 1748, Linnaeus included L. zeylana entirely on the authority of Burman. It is evident from the detailed description of the flower that the plant growing in the garden at Upsala was of the Painted Lady variety—"*Vexillum rubrum, alae albae, carina alba, apice rufescente.*"

In the *Bulletin of the Cornell University*, No. 320, entitled "Sweet Pea Studies," by Alvin C. Beal, which was reviewed in *The Gardeners' Chronicle* of January 18, 1913, pp. 40, 41, it is stated that "in Miller's Gardeners' Dictionary, first folio edition, 1731, is found the following, referring to the culture of Lathyrus tingitanus and Lathyrus distoplatyphyllos: 'The sweet-scented sort is the most valuable, both for beauty and fragrancy of its flowers. *Of this sort there are two other varieties: one of these has pale red flowers called by gardeners Painted Lady Peas: the other hath entire white flowers.*'" And to this Mr. Beal adds, "From the preceding, it is clear that three varieties were known at least as early as 1731."

Having carefully examined the first four editions of Miller's Dictionary, I am able to state that, so far as the sentence commencing "Of this sort" is concerned, the above statements are quite incorrect. The only variety mentioned by Miller at that time was the purple, and Cupani's *Hort. Cath.* is the only authority given. I have not been able to consult the fifth and sixth editions of Miller's work, but in the seventh edition, published in 1759, and in the later editions the words objected to appear as quoted; Burman's *Treasury* is given as the authority for the Painted Lady, and Ceylon as the country of its origin. The white variety had been mentioned by H. B. Ruppius in his *Flora jenensis* in 1718.

As a final word respecting my investigations, I am convinced that Lathyrus zeylanicus is not a myth; neither is there any evidence of fraudulent dealing on the part of Hartog, Vos or Burman, by whom it was introduced to public notice.

In one of his most interesting letters Mr A. J. Van Laren writes: "In the Library of the University of Amsterdam I found in a collection of coloured drawings of flowers entitled "*Arbores, fruitices, bulbi et plantae ad vivum coloribus pictae atque collectae, cura et labore; Henri d'Acquet, Senator ac Consul. Delfensis*, under No. 136, a hand-painted drawing of the Sweet Pea, under the name of Lathyrus odoratus major, signed 'A. v. L., 4 July, 1706.' It shows a flowering stem with two leaves and three flowers, with a purple-hooded flag and blue wings, and is probably the oldest coloured drawing of the Sweet Pea."

It would appear from this that Linnaeus was not the originator of the name Lathyrus odoratus. The only illustration of the Sweet Pea older than this is the fine drawing in Commelin's *Horti medici amstelodamensis* (1700), which is reproduced on page 40 of *The Gardeners' Chronicle* for January 18, 1913.

It is somewhat remarkable that, although the Sweet Pea is classed by Linnaeus under section bifloris, the painting of d'Acquet, and a hand-painted drawing on Batty Langley's plate for June, have each three flowers on a stem. *S. B. Dicks.*

PLANTS NEW OR NOTEWORTHY.

PSILOTUM TRIQUETRUM.

Psilotum triquetrum (see Fig. 171, p. 363) belongs to an interesting class of plants; it is erect or sub-erect, with angular stems $\frac{1}{8}$ to $\frac{1}{4}$ of an inch thick, and with many times dichotomously forked, triquetrous branches, on the angles of which are placed, laxly, a few rigid, linear, minute leaves, which are so small that they are practically useless as assimilating organs. The function of carbon assimilation is performed by the outer cortex of the green branches. The subglobose sporangia, which are vertically trivalved, are borne singly in the axils of two small, leaf-like, forked sporophylls. The plant is rootless, the root function being performed by an underground, leafless rhizome.

The species is a native of the tropical regions of both hemispheres, extending to Florida, Japan and New Zealand, and growing either in rich, organic soil, or as an epiphyte. It was introduced into this country in 1793. At Cambridge it succeeds as a pot plant in fibrous loam and peat; it is easily increased by division, or by pieces of the underground rhizome, or by branches cut into short lengths, but nothing seems to be known of its propagation from spores.

The genera Psilotum and Tmesipteris constitute the class of Pteridophytes known as Psilotinae; and since the gametophyte of the Psilotinae is unknown, nothing certain can be stated about the relationship of these plants to the other classes of Pteridophytes. In habit they bear a resemblance to the Lycopodinae (and the species already mentioned is the Lycopodium, nudum of Linnaeus); but in Lycopodiums the sporangia are reniform and one-celled, while in Psilotum they are turbinate and three-celled; but in the structure of the sporophylls and sporangia they more nearly resemble the Equisetinae and Sphenophyllales.

The Psilotinae would appear to be relics of a former epoch, yet the rocks apparently throw little or no light on their origin or age. *F. G., Preston.*

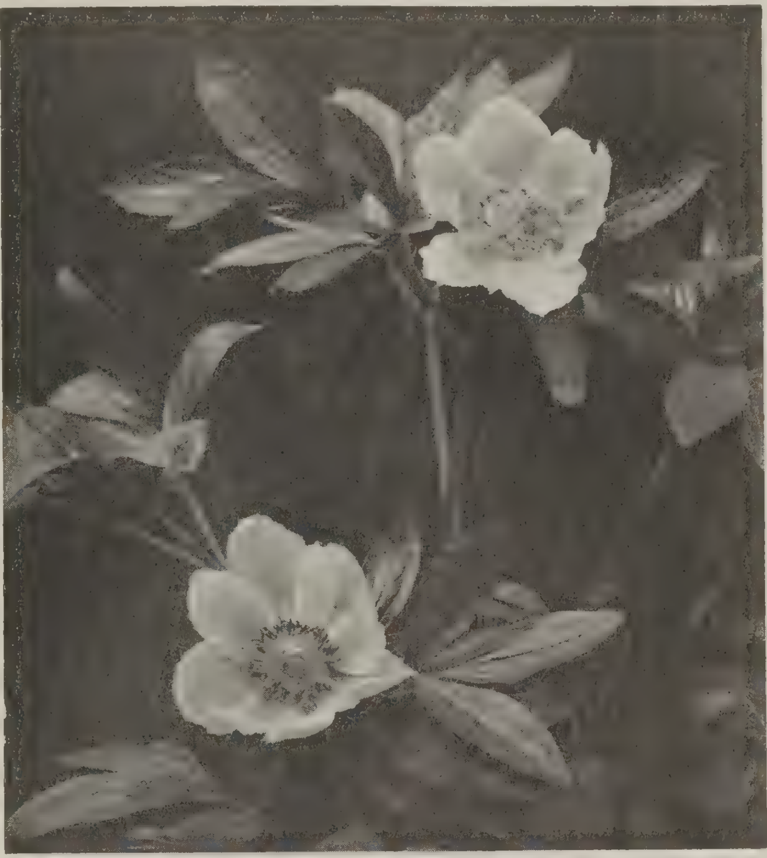

FIG. 172.—PAEONIA EMODI FORMA.

PAEONIA EMODI FORMA.

The beautiful, but by no means common Paeonia Emodi, a native of the Himalayas, is one of the most attractive members of the whole genus. A plant sent here some years ago under that name, but recently identified as Paeonia Emodi forma (Fig. 172), is equally beautiful, with flowers of satiny white. The petals are so delicate in appearance that they are almost transparent, and much more fragile-looking than in the type, and I believe I am quite safe in stating that P. Emodi forma is quite distinct from any other Paeonia in cultivation.

Although there is a great resemblance between P. Emodi and P. Emodi forma, at the same time there are strong points of difference. The flowers, so far as I have observed them in P. Emodi forma, are borne singly, while P. Emodi usually has more than one flower on each stem, similar to the allied species P. albiflora. As in P. Emodi, the carpels are tomentose, but while the last-named plant has only one carpel (although occasionally two have been found), in P. Emodi forma the carpels appear to be all in pairs. The foliage is like that of P. Emodi, bright green at first, turning bronzy with age. The cultivation of the plant is not difficult, but, like the type, it derives benefit from the protection of a wall, and as Paeonias suffer more from sudden thawing than from direct frost, a position in front of a wall facing east is not suitable. *F. G. Preston, Botanic Gardens, Cambridge.*

SILENE CALIFORNICA.

Although a native of the Pacific Coast of America, from Oregon to Northern and Central California, Bailey, in *Standard Cyclopedia of Horticulture*, states it is doubtful whether Silene californica is in cultivation, yet the plant is now in bloom in Mr. Amos Perry's nursery at Enfield. This beautiful showy-flowered Silene has flowers of the most brilliant scarlet, and the petals are cut almost to the base, giving the bloom a fringed appearance. The individual blossoms measure $1\frac{1}{4}$ inch in diameter, and they are produced on procumbent or semi-erect stems. The leaves are ovate-elliptic, narrowed at the base and slightly pubescent. *T.*

HOME CORRESPONDENCE.

Destroying Large Red Ants (see p. 327).—Large black ants are very numerous in this district. Creosote is a certain destroyer of these insects. There are always large numbers out foraging, when the nest has been treated, and those returning home forsake the nest at once, whilst those in the nest perish. Creosote quickly clears the immediate surroundings of the ants, but it needs to be used with care, as it is deadly to plants, and the fumes inside frames, etc., are also destructive to plant life.—*G. H., Ferndown, Dorset.*

Dr. Patrick Neill.—I very much regret that in my article on Dr. Patrick Neill (see p. 320) I made the unfortunate mistake of spelling his name as "Niell," instead of "Neill." It was a slip for which I can find neither reason nor excuse, and so I apologise for it. In connection with Dr. Neill the following episode is noteworthy. The Aesculapian Club of Edinburgh, in 1814, came to a decision to sow seeds of a variety of Alpine plants and shrubs among the rocks of Adthur's Seat and Samson's Ribs, and to extend the walks in the King's Park in order to make access more easy. Dr. Neill was a member of the committee appointed to carry out this proposal. The Earl of Haddington, hereditary keeper of the King's Park, was approached for permission to allow the work to be done. He refused because his tenant had complained of strangers disturbing sheep, and for other reasons. But it is not improbable that what he would not permit was done surreptitiously so far as seed sowing was concerned. Dianthus caesius, for instance, is not mentioned in *Flora Scotica* and other early botanical books until Balfour's *Flora of Edinburgh*, where it is mentioned as growing on Arthur's Seat, but introduced. The white deltoides and other Dianthi have long been known to flourish there. Whether the proposal was wise is a question that admits of differences of opinion, but it is interesting as showing how keen were a section of Scotsmen at that period to improve the amenities of the city. *R. P. Brotherston.*

What is a Rock Garden?—The Council of the R.H.S. would do well in future to stick closely to the well-established rule of all flower shows to let the decision of the judges be final, unless some condition of the competition has been transgressed. If it is to be merely a case of re-judging by the Council, then it is an affront to ask competent men to place themselves in the position of having their decisions overruled. There is sufficient executive work at such a show as Chelsea to occupy the members of the Council without interfering with the work of the judges, and if a little more initiative had been displayed by those running the show there would not have been such a lamentable state of affairs both inside and outside the tents, for wet weather threatened days before the exhibition opened. On a previous occasion when Chelsea met with unfortunate weather boards were procured, and it seems to me that it would be money well spent to have a stock of boards in hand, such as were employed at the old Temple shows, to meet the contingency of wet weather. *Fellow.*

Gardeners' Wages.—*H. P.* (p. 323) fails to see "that the best gardeners get the best chances." I did make that statement, but I added, "although not in every case," and his experiences regarding a builder's labourer, poultry farm hand, farm labourer, and a grocery hand only coincide with my remarks regarding half-trained gardeners. I have, to my bitter disappointment, served on two occasions under inefficient men in what should have been comfortable establishments. I know of no greater set-back for a young and ambitious gardener to experience than that to which I refer. We have many good and efficient men in our profession, but there are also many who are inefficient. If all qualified men, head and under, combined throughout the British Isles, it would be better for the profession in general, and employers would have a better opportunity of obtaining qualified men in all cases. Then perhaps wages and conditions might improve. Regarding those who never leave their birthplace to gain a better knowledge, it is a pity, but there are stay-at-homes everywhere. It is to be hoped that in the near future more bothies will be opened and gardens run more on pre-war lines with encouragement for the gardeners of the future. With all due respect to *H. P.* and others, nothing will alter my opinion that it is usual for English ladies and gentlemen to treat with consideration their gardeners who have served them well and long. I have read of and know several gardeners who are in receipt of pensions from their employers. *T. W.*

THE PEAR MIDGE AT DROITWICH.

In 1907 the larvae of the Pear Midge (Diplosis pyrivora) was very destructive to the fruits on young bush Pear trees in the experimental garden at Droitwich, and, as many complaints concerning the pest were received from fruit-growers, it was decided to attempt to deal with the pest in three different ways, viz.:—Firstly, by rendering the buds and flowers objectionable to the Midge without injuring them; secondly, by gathering and burning all affected young fruits as soon as they could be detected; and thirdly, by the application of 8 lb. of kainit to the surface of the soil under each tree, the soil being first pricked over very lightly.

The offensive odour of dissolved liver of sulphur was relied upon to keep the midge at a distance, as also was soluble kerosene. It was known that the timely gathering and burning of the affected fruit would be effective. A dressing of kainit to the trees acted as a stimulant to their activity, and would, it was hoped, be harmful to any larvae with which it came into contact.

Four different varieties of Pears were selected for treatment, and they were—Doyenné du Comice, Maréchal de Cour, Pitmaston Duchess, and Williams's Bon Chrêtien. Of the first three varieties there was one bush tree each, of the fourth variety there was one bush tree and one standard tree.

Spraying, gathering, and burning affected fruits, and dressing with kainit all combined to produce satisfactory results in three years.

In each case and each year, to 1911 inclusive, the spraying was commenced on the same day on which the flower-buds would open. Second or third sprayings were given as the buds arrived closely to the opening stage.

In 1912 the trees were sprayed on April 20 and again on April 25. On June 15, 8 lb. of kainit was spread on the soil over the roots of each tree under treatment. In 1913 no spraying was done, and the Midges reappeared in fair numbers.

The following small table shows the behaviour of the Pear trees under treatment from 1907 to 1911 inclusive:—

	Burned. Affected young fruit.	Ripe fruit gathered.
Williams's Bon Chretien	286 in 3 yrs.	643 lbs. in 5 yrs.
Dovenné du Comice	20 ,, 3 ,,	527 ,, 5 ,,
Pitmaston Duchess ...	6 ,, 2 ,,	461 ,, 5 ,,
Souvenir du Congres ...	65 ,, 3 ,,	408 ,, 5 ,,
Maréchal de Cour ...	51 ,, 3 ,,	108 ,, 4 ,,
	428	2,147 lbs.

The liver of sulphur (potassium sulphide) was used in the proportions of 1 ounce to 1 gallon of water, or of 1 pound to 16 gallons of water. Soluble kerosene was used as a 2 per cent. solution. Potassium sulphide was used on Doyenné du Comice, Pitmaston Duchess and Maréchal de Cour; and the kerosene solution on Souvenir du Congres and Williams's Bon Chrêtien (one bush and one standard), both trees being planted in the spring of 1896.

It is obvious that large standard trees in orchards could not be so easily dealt with as small trees But it does not follow that no good results would be obtained if similar treatment were carried into effect so far as possible whenever there is an infestation of Pear Midge. *J. Udale.*

SOCIETIES.

ROYAL HORTICULTURAL.

June 26 and 27.—As compared with recent meetings the one held on the above dates lacked nothing in either extent, brilliance or interest. Sweet Peas were an outstanding feature, while Poppies, Delphiniums, Campanulas, Pinks, Paeonies, Carnations, Salpiglossis, Crassulas, flowering shrubs, alpines and Orchids were all presented in goodly numbers. The Floral Committee had a busy time, as no fewer than sixty-seven plants and flowers came up for judgment, and forty-one medals—including a gold one—were awarded to groups.

Orchid Committee.

Present: Sir William Lawrence, Bart. (in the chair), Messrs. Jas. O'Brien (Hon. Secretary), Gurney Wilson (Assistant Secretary), Arthur Dye, Fred. K. Sanders, Chas. H. Curtis, J. E. Shill, Pantia Ralli, T. Armstrong, A. McBean, H. T. Pitt and the Hon. H. D. McLaren.

First-Class Certificates.

Laelio-Cattleya Mrs. Willoughby Pemberton, The Dell variety (*L.-C. Baroness Emma* × *L.-C. eximia*), from Baron Bruno Schröder, The Dell Park, Englefield Green (gr. Mr. J. E. Shill). One of the finest of the many beautiful hybrids raised at The Dell. The plant bore a noble spike of three flowers of perfect shape, each measuring eight and a half inches across. The sepals and broad petals are light, rosy mauve; lip broadly expanded, ruby purple in front and lighter on the side lobes, the disc being chrome yellow.

Odontoglossum Orosius magnificum (*Solon* × *Maillardeanum*), from Messrs. J. and A. McBean, Cooksbridge. A fine example of a perfect hybrid and of fine culture. The plant bore an arching spike of fourteen flowers, perfect in shape and broad in all the segments. The sepals and petals are ruby-crimson, with a violet shade, the margins having a narrow irregular white band. The broad lip is white in front, ruby purple on the basal half and the crest yellow.

Awards of Merit.

Odontoglossum Ernest Bristow (*Lambardianum* × *Uro-Skinneri*), from Messrs. Armstrong and Brown, Tunbridge Wells. A very distinct cross, and one of the prettiest of the section, the flowers showing much evidence of the O. Uro-Skinneri parent. Sepals and petals claret colour, with thin transverse, wavy white lines. Lip broader than long, white, densely spotted with rosy-mauve, the median area having a white band; column white densely spotted with dark claret-red on the upper side.

Cattleya Hentschelii, Rosslyn variety (*Warscewiczii* × *Dupreana*), from H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). C. Dupreana is from Warneri × Warscewiczii, and the fine flowers of the plant shown well displayed the enlarging influence of C. Warneri, while retaining the main features of the other parent. The sepals and petals are rosy-mauve, the front of the broad lip ruby-purple and the disc yellow.

Cultural Commendation.

To Mr. J. E. Shill, gr. to Baron Schröder, for a grand specimen of Laelio-Cattleya Mrs. Willoughby Pemberton. To Mr. Thurgood, gr. to H. T. Pitt, Esq., Rosslyn, Stamford Hill, for a remarkably beautiful specimen of Miltonia Phalaenopsis, with twenty-three white and rose flowers.

Other Exhibits.

H. T. Pitt, Esq., was awarded a silver Flora Medal for a very pretty and interesting group. There were several species of Thunia at the back with slender Epidendrums. In the centre were two plants of the graceful yellow Platyclinis (Dendrobium) filiformis, with a profusion of flowers; various pretty Miltonias, the best of which was

M. Lady Veitch (vexillaria var. × Jules Hye de Crom), a large white flower with dark mask at the base of the lip; some showy Odontoglossums, ncluding the fine O. Corona. Showy Odontiodas and a very remarkable selection of rare species, including the white Epidendrum Endresii and species of Masdevallia and Bulbophyllum were also noted, with good examples of Vandas tricolor, suavis and coerulea.

Pantia Ralli, Esq., Ashtead Park (Orchid gr. Mr. Farnes), showed Odontoglossum Adula Rubicon (eximium × Doris), with a good spike of finely coloured flowers. The cross was first shown by Dr. Lacroze as O. Cordoba in 1918.

Mr. Ralli also showed Odontioda Alcantara var. Prince of Orange, with pretty orange-red flowers.

J. N. Hartley, Esq., Pemberton, near Wigan, sent Miltonia A. C. Burrage, a very showy hybrid of unrecorded parentage, with large Peach-blossom coloured flowers, with very dark claret mask on the lip. The plant was a fine example of good culture.

Floral Committee.

Present: Mr. H. B. May (in the chair), Sir W. Lawrence, Messrs. W. Howe, G. Harrow, J. F. McLeod, H. J. Jones, C. R. Fielder, John Heal, R. C. Notcutt, Jas. Hudson, J. B. Riding, M. C. Allwood, R. W. Wallace, D. B. Crane, H. D. McLaren, Amos Perry, D. Allan, G. W. Loder, W. B. Cranfield, H. R. Darlington, Chas. E. Shea, G. W. Leak, W. P. Thomson, Chas E. Pearson, and E. A. Bowles.

Awards of Merit.

Lupinus Harkness' Strain.—This strain is remarkable for the charming shades of chamois, amber, rose, pink, salmon and yellow in the flowers. All the varieties are of sturdy growth. Shown by Messrs. Harkness and Sons.

Papaver orientale var. Mrs. H. G. Stobart.—A bold, large-flowered variety with crumpled and slightly fringed margins. The colour is rich cerise with rose tinting, and there is a large black blotch at the base of each broad segment. Shown by Messrs. Harkness and Son, Messrs. Gibson and Co., and Messrs. Barr and Sons

Papaver orientale var. Miss Ethel Swete.—A handsome variety, of good form and beautiful cerise-pink colouring, with a black blotch at the base of each segment. Shown by Messrs Harkness and Son., Messrs. Gibson and Co., and Messrs. Barr and Sons.

Delphinium Mrs. Townley Parker.—In this variety the single flowers are of large size and set closely together on a big, branching spike. The flowers are clear soft blue, with a white eye. Shown by Messrs. Blackmore and Langdon.

Delphinium Blue Boy.—Another strong-growing, single variety of rich sky-blue colouring and white eye. Shown by Messrs. Blackmore and Langdon.

Delphinium Unique.—A distinct variety, with rounded, semi-double flowers set loosely upon a long spike. The colour is deep dusky blue, with black centre. Shown by Mr. T. Carlile.

Campanula persicifolia The King.—The flowers of this variety are of cup-and-saucer shape, and widely expanded. The colour is deep blue. The variety will appeal to those who have a preference for formal flowers. Shown by Messrs. B. Ladhams.

Kolkwitzia amabilis.—An elegant, free-flowering shrub akin to Abelia and Diervilla. The small, pink flowers are very like those of a Diervilla in shape and have a little orange colouring in the throat. This species was discovered in the Chinese Province of Shensi, 1890-1895, by Pére Giraldi, and introduced to cultivation by Mr. E. H. Wilson when collecting for Messrs. J. Veitch and Sons. Shown by Lt.-Col. Messel, Nymans, Handcross, Sussex.

Lilium hybridum Golden Orb.—A hybrid of Mrs. Backhouse's raising and belonging to the Hansonii group. The flowers are about three inches across, pendant at the ends of the footstalks, light yellow, freely spotted with maroon. The flowers are fleshy and expand flatly until the pollen is ripe, when the segments recurve somewhat. Shown by Messrs. R. Wallace and Co.

Groups.

Sweet Peas added materially to the attractions of the show, for they were shown in generous quantity and of such superb quality as to augur well for the success of the National Sweet Pea Society's show at Bath on July 11 and 12 next. The best collection was displayed by Messrs. Sutton and Sons, who had a large and exceedingly attractive exhibit. Their countless blooms were all of high quality and the colour associations particularly happy. The principal varieties, so well displayed, were Burpee's Giant White, Doris, radiant cerise pink, Hawlmark Pink, Hebe, bright rose pink, Jean Ireland, creamy buff with picotee edging of rose pink, May Unwin, orange scarlet, tinted with rose pink, Mrs. Tom Jones, Delphinium blue, Ravenswing, very dark maroon, Valentine, blush pink, and Warrior, chocolate maroon (Gold Medal).

In a noteworthy collection contributed by Messrs. Dobbie and Co. there were three especially good new varieties. Youth, which was shown on behalf of Messrs. C. C. Morse and Co., of California, is a very uncommon variety of first-class form. It is a good white with the standard edged with bright blush pink. Royal Sovereign is a rich orange yellow with more than a suggestion of scarlet. Mary Rose is also a fine type and bears large shapely flowers of deep pink shades. Of the many recent standard varieties, Hawlmark Pink, Orchid, pale mauve shades, New Marquis, deeper shades of mauve, and Mrs. Tom Jones, rich blue-mauve, were splendid, but there were many more, all deserving mention did space permit (Silver-Gilt Flora Medal).

A smaller, but highly meritorious collection of Sweet Peas was arranged by Messrs. R. Bolton and Son in the annexe. There were splendid vases of Comrade, a delicately tinted pink variety, Daffodil, a pleasing yellow variety, Colne Valley, a substantial mauve sort, and Wizard, deep orange scarlet (Silver Banksian Medal).

In the body of the hall Messrs. J. K. King and Co. showed good vases of George Shawyer, Picture, Powerscourt, and Elegance, with many others (Silver Banksian Medal).

An unusual exhibit, and of great excellence, was that composed solely of Salpiglossis sent by the Society from the Wisley Gardens. They were pot plants which had been grown in a cool greenhouse. The plants were exceptionally sturdy and bore splendid heads of large blooms of entrancing colours. Although this large circular group contained practically all possible shades and combinations of colours, yellows seemed to be in the ascendancy, and this gave a delightful golden tone to the exhibit, which reflected the highest credit on the grower (Gold Medal).

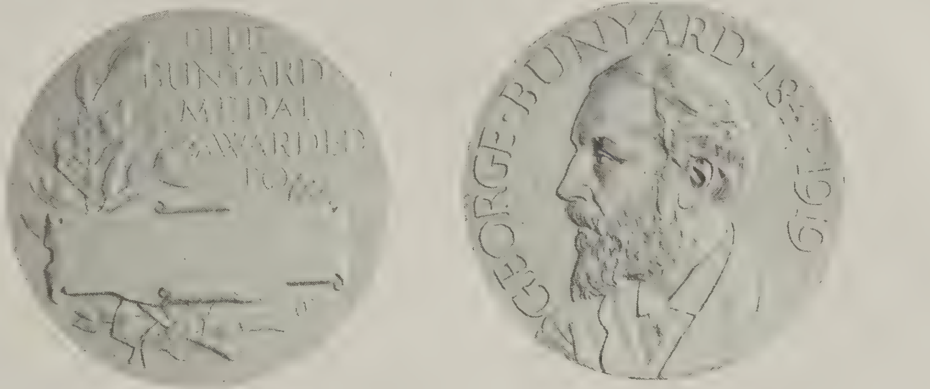

FIG. 173.—THE BUNYARD MEDAL FOR FRUIT EXHIBITS: WON BY MRS. ASCROFT FOR STRAWBERRIES, ON JUNE 26.

Baron Schröder (gr. Mr. E. J. Henderson), The Dell Park, Englefield Green, exhibited a magnificent group of Crassula coccinea minor with occasional specimen plants of Cordyline (Dracaena) Lindenii rising above them. Very many plants were contained in the extensive group, and all displayed expert cultivation, while considerable skill and taste were evidenced in their arrangement (Silver-Gilt Banksian Medal).

Next to the New Plant Stand Messrs. L. R. Russell, Ltd., arranged a very attractive collection of miscellaneous tropical plants. Those grown for their handsome foliage predominated, and included Anthuriums of several sorts, many Cordylines (Dracaenas), Caladiums and Cissus discolor, whilst amongst flowering plants were Clerodendron Balfourianum, Gloriosa Rothschildiana, Thunbergia grandiflora and Medinilla magnifica (Silver Flora Medal).

The Hon. Vicary Gibbs (gr. Mr. E. Beckett, V.M.H.), Aldenham House, Elstree, exhibited a large number of Streptocarpus hybrids, which illustrated a very excellent strain and high-class cultivation (Silver-Gilt Banksian Medal).

Carnations were shown in goodly quantity and of the high quality that is almost invariably seen at the fortnightly shows. Messrs. Allwood Bros. staged many vases of distinct greenhouse varieties such as Mary Allwood, Edward Allwood, Chintz and the new Sussex Leander of old rose colour; they also had a couple of large stands of mixed Perpetual-Malmaison varieties arranged very attractively (Silver-Gilt Banksian Medal). Messrs. Wm. Cutbush and Son gave the central position in their collection of Carnations to their new Prince of Wales, a large-flowered border variety of silvery puce colour. Amongst their greenhouse sorts a large vase of Baroness de Brienen was very effective (Silver Banksian Medal).

A great many varieties of perpetual-flowering Carnations, especially the sorts favoured for market gardening purposes, were well displayed by Mr. C. Engelmann (Silver Banksian Medal).

A number of vases of excellent border Carnations was exhibited by Mr. James Douglas, and these included Bookham Flame, Orangeman, Topaz, Grenadier, Princess Mary and Fragrance (Silver Flora Medal).

In view of the nearness of the summer show of the National Rose Society and the untowardness of the season, it did not occasion surprise to find only one exhibit of Roses. This was from Messrs. Frank Cant and Co., and included vases of Ophelia, Golden Ophelia, Isobel and a few other sorts (Silver Banksian Medal).

Although not shown in such quantities as at recent meetings, Irises were fairly plentiful. Mr. Amos Perry had a large group associated with Japanese Maples. His chief varieties were of the orientalis, squamosa and flavescens sections, and these made a very attractive display (Silver-Gilt Banksian Medal). Messrs. Wallace and Co. had various tall bearded varieties and good forms of Iris sibirica. They also showed such Liliums as L. Mrs. R. O. Backhouse, L. umbellatus erectus, L. Martagon and its varieties (Silver Banksian Medal).

Delphiniums of great merit were staged by Messrs. Blackmore and Langdon. They had magnificent spikes of the new varieties Blue Boy and Mrs. Townley Parker, with Queen of Bath, pale blue, Queen Mary, King Bladud, dark blue, and The Alake (Silver-Gilt Banksian Medal).

Messrs. Kelway and Co. associated Delphiniums with single and double-flowered Paeonies. Amongst the latter were Belgium, Summer Day, Shirburnianum and Glory of Somerset (Silver Banksian Medal).

The Chalk Hill Nursery Co. had a very interesting collection of miscellaneous border flowers, such as Paeonies, Geums, Verbascums and Sweet Williams, with a good pan of Muehlenbeckia nana, various Sempervivums, Sedums and Gazania splendens (Bronze Flora Medal). Spanish and Dutch Irises in named varieties, together with border flowers, were shown by Messrs. Barr and Sons (Silver Banksian Medal).

Some especially good double-flowered Paeonies were displayed by Messrs. R. H. Bath, Ltd., and amongst them immense blooms of the blush-pink Lady Carrington were very prominent. Paeonia edulis superba with grandiflora varieties Razialla and La France were also of great merit (Silver Flora Medal). Mr. G. Reuthe had his customary exhibit of new and rare shrubs and alpines, including a little group of Ericas (Silver Banksian Medal). Mr. C. Scaplehorn had a good central group of Kalmia latifolia amongst his exhibit of herbaceous plants (Silver Banksian Medal). Campanula Telham Beauty with other varieties was well shown by Mr. M. Prichard (Silver Flora Medal). Mr. F. G. Wood also had this valuable Campanula and associated it with Lychnis Flos-Jovis and L. chalcedonica. Amongst his dwarfer plants Primula Burnettii was particularly attractive (Silver Banksian Medal). Dianthus Pirbright Glory, a pretty, free-flowering, pink variety, was prominent in a collection arranged by Messrs. Skelton and Kirby (Bronze Banksian Medal).

Mr. T. Carlile had a good collection of Delphiniums, including such sorts as Fair Lady, Loddon Guard, Mrs. A. C. Kenrick and Barbara (Silver Flora Medal). Mr. W. Wells, junr., displayed Delphiniums, Erigerons and Heucheras (Silver Banksian Medal). The Central Garden Supplies Co. staged Violas in variety (Bronze Flora Medal). Messrs. Maxwell and Beale showed border Pinks, Mesembryanthemums, Campanulas and alpines.

In a corner space Messrs. Carter Page and Co. had an attractive group of Geums, Nepeta Mussinii, Heucheras, Delphiniums and other border flowers (Bronze Flora Medal). Their showy tree Lupin Sunshine was again displayed by Messrs. Waterer, Sons and Crisp. They also had good batches of Pentstemon heterophyllus and Inula glandulosa grandiflora (Silver Flora Medal). Messrs. Harkness had a beautiful group of the Lupins for which they had received an Award of Merit (Silver Banksian Medal). The Misses Hopkins made an attractive rockery in the annexe (Bronze Flora Medal).

Messrs. B. Ladhams, Ltd., staged an interesting variety of their excellent garden Pinks, and also showed Campanulas of merit (Silver Flora Medal). Messrs. W. J. Godfrey and Son staged Canterbury Bells, Oriental Poppies and Solanum Wendlandii (Silver Banksian Medal). Verbascums Cotswold Queen and Cotswold Gem associated with Hesperis matronalis alba plena were effectively arranged by Messrs. R. Tucker and Sons (Silver Banksian Medal).

A collection of hardy shrubs, shown by Messrs. J. Piper and Son, mostly those with silvery foliage, was an attractive feature (Silver Banksian Medal). Messrs. Bakers, Ltd., displayed their "Sunbeam" Poppies (Bronze Flora Medal). In the annexe Mr. Chas. Turner displayed various garden Pinks of merit. Messrs. Lowe and Gibson staged spikes of Gladiolus primulinus hybrids (Silver Banksian Medal). The Donard Nursery Co. arranged very floriferous branches of Leptospermum Nichollii, several species of Escallonia, Pittosporums, Olearia semi-dentata and other uncommon shrubs with some excellent spikes of Dierama pulcherrima (Silver Banksian Medal).

Messrs. Carter and Co. had a tasteful arrangement of their strain of Iceland Poppy (Bronze Flora Medal). In the annexe Mr. S. Smith again showed a collection of interesting succulent plants (Silver Banksian Medal).

The competition for the Clay Cup did not bring forward any new seedling Rose of outstanding merit. The conditions stipulate a variety of good form and colour and possessing the old rose fragrance. Three varieties were entered by Messrs. Frank Cant and Co., and none fulfilled the first condition, though this failure may be due to the inclement season. Rosemary, a rich pink-coloured Rose, which when fully open discloses a distinct eye, was the most fragrant.

Fruit and Vegetable Committee.

Present: C. G. A. Nix (Chairman), J. Cheal, Geo. F. Tinley, S. B. Dicks, W. F. Giles, P. D. Tuckett, T. Pateman, Edwin Beckett, G. Reynolds, H. Markham, W. H. Divers, H. Prince, and A. N. Rawes.

The Chairman expressed his deep regret of the death of Mr. Challis, an old and valued member of the Committee, a fine old gardener who was highly esteemed by all who knew him. It was resolved to send a letter of condolence to the members of Mr. Challis' family.

There was only one exhibit of Strawberries for the award of the Bunyard Medal (Fig. 173, p. 367), the poor response being partly due to the lateness of the season and the fact that few were aware that such a competition was arranged. The exhibitor was Mrs. R. W. Ascroft, Orchard Cottage, Effingham, Surrey, and the variety shown Royal Sovereign. The Silver Bunyard Medal was awarded. The Committee expressed the hope that a better response will be made at the next fortnightly meeting in the competition for Cherries.

Messrs. Barr and Sons, King Street, Covent Garden, were awarded a Silver Knightian Medal for a collection of vegetables, comprising some 30 dishes. The produce was good considering the unfavourable season, and included Canadian Wonder Beans, Midlothian Early Potatos, Early Frame and New Intermediate Carrots, White Spanish and The Queen Onions, Green Favourite Lettuces, Scarlet Beauty Tomatos, Beets, Peas, Cucumbers, Spinach, Mushrooms, and Marrows.

ANSWERS TO CORRESPONDENTS.

Preservation of Natural Foliage.—For preserving leaves and flowers in their natural state the following is recommended for trial: One litre of fine white sand is sifted, washed and dried, then the following solution is made: 3 gms. of stearin, 3 gms. of hard paraffin, and 3 gms. of salicylic acid in 100 gms. of absolute alcohol, dissolved by aid of heat. With this solution the sand, previously heated, is treated little by little, until all the grains are moistened, when the whole is exposed to the air to dry. The leaves or flowers to be preserved are placed in a suitable box on a layer of the prepared sand, and more of the sand is sprinkled over them, so as not to disturb the natural position, until they are completely covered. The box is then stood in a warm place (30° to 40° C.) for two days, after which time the sand is carefully drawn off, the best means of doing this being to provide the box with an opening in the bottom, from which a cork or other suitable stopper may be withdrawn.

Vermorel Knapsack Sprayer: *E. W.* The Vermorel Knapsack sprayers may be obtained from Messrs. Cooper, Pegler and Co., Ltd., 24-26, Christopher Street, Finsbury Square, E.C.2.

Communications Received.—A. Z.—T. B.—T. W.—W. H. C.—E. W.—A. G.—T. R.—E. H. W.—P. & S.

MARKETS.

COVENT GARDEN, Tuesday, June 26, 1923.

Vegetables: Average Wholesale Prices.

	s. d. s. d.		s. d. s.
Asparagus, bundle		Onions—	
—Special Devon	15 0–25 0	—Egyptian ..	10 0–12
—Spec. Evesham	10 0–25 0	Peas—	
—Best ,, ..	3 6– 6 0	—Blue, bag ...	12 0–15
Beans—		Potatos,	
—Guernsey, lb.	1 0– 2 0	—Guernsey, new, lb.	16 6–12
—Madeira basket	2 6– 3 0	—Jersey ..	10 6–12
—Worthing ..	1 3– 2 0	—King Edward	£3 –£3
Broad Beans, ½ bus.	2 0– 2 6	—Cornish bushel	7 0– 8
Beets, cwt. ..	2 6– 4 0	Radishes, doz...	1 0– 1
Cabbage, dozen	1 6– 2 6	Rhubarb, ...	0 9– 1
Carrots, new— doz. bunches..	2 6– 8 0	Spinach, bushel	3 0– 3
Cauliflowers, doz.	2 6– 6 0	New Turnips, doz. bunches..	9 0–10
Cucumber, Flat	14 0–16 0	Tomatos—	
Green Artichokes, dozen ..	1 6– 2 0	—English ...	— —
Greens, bag ...	2 0– 2 6	—Pink and Pink and White ..	7 0– 8
Lettuce, dozen—		—White	5 6– 6
—English ..	1 0– 2 0	—Blue	5 0– 6
Marrows, doz...	12 0–18 0	—Guernsey ..	– 7
Mint, doz. ..	3 0– 4 0	—Canary Islands	10 0–15
Mushrooms, lb.	1 6 –2 6		

Remarks.—Weather conditions were, for a few days more favourable for the fruit trade, and a more confident tone was reported from most sections. Consignments of Strawberries are heavier, and their prices lower. Apricots from Spain are plentiful, and their value is easier. Apples from Australasia are selling satisfactorily at easier rates. Grapes, Peaches, Nectarines and Melons are selling fairly well, but the competition of Strawberries usually has a retarding effect on the sales of these choice fruits. Cherries have made their appearance and have realised good prices. The Gooseberry trade has suffered acutely from the competition of Dutch berries, and prices have fallen sharply. Tomatos have recovered somewhat in price, a few warm days stimulating the demand. Cucumbers have also slightly improved in price. French Beans have not met with such a keen inquiry as heretofore. Outdoor Peas are fairly plentiful, although the pods are poorly filled. The lateness of the season has doubtless encouraged growers to continue cutting Asparagus, of which fair supplies are available.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.		s. d. s. d
Adiantum cuneatum, per doz. ..	10 0–18 0	Hydrangeas white & pink, —48's, doz. ..	15 0–24 0
—elegans ..	10 0–12 0	Marguerites, per doz.	12 0–18 0
Aralia Sieboldii..	10 0–12 0	Mignonette ..	10 0–15 0
Araucarias ..	30 0–48 0	Nephrolepis, in variety ..	12 0–18 0
Asparagus plumosus ..	12 0–15 0	—32's	24 0–36 0
—Sprengeri ..	12 0–18 0	Palms, Kentia ..	24 0–30 0
Aspidistra, green	48 0–72 0	—60's	15 0–18 0
Asplenium, per doz.	12 0–18 0	—Cocos ..	24 0–36 0
—32's	24 0–30 0	Pelargonium ..	18 0–24 0
—nidus	12 0–15 0	Pteris, in variety	12 0–21 0
Boronias ..	21 0–27 0	—large 60's ..	5 0– 6 0
Cacti, per tray, 12's, 15's ..	5 0– 7 0	—small	4 0– 4 6
Crassulas, 48's pink, per doz.	24 0–30 0	—72's, per tray of 15's ..	3 6– 4 0
red, ,,	24 0–30 0	Roses Polyantha 48's, per doz...	24 0–30 0
Crotons, per doz.	30 0–42 0	—Ramblers, various sizes..	7 6–20 0
Cyrtomium ..	10 0–15 0	Spiraeas ..	18 0–24 0
Erica		Stocks, White & Coloured ..	12 0–15 0
—candidissima	21 0–24 0	Verbenas, Miss Willmott 48's	15 0–18
—Cavendishii ..	30 0–36 0		
—magnifica ..	36 0–42 0		
Heliotropes ..	12 0–15 0		

Remarks.—Supplies of all subjects have increased considerably during the past few days, and prices for all grades are easier, especially for Roses, Carnations and Sweet Peas. The finer weather has resulted in large supplies of Roses, and many of the blooms were sold very cheaply owing to their advanced condition. Owing to this it is difficult to give correct quotations for Roses, and the same remark is true of Carnations and Sweet Peas, although these are now in excellent condition. Double white Pyrethrums are practically finished for this season. Double white Stock and white Pinks are taking the place of the white Pyrethrums. There is an abundant supply of Delphiniums, Cornflowers, Gypsophila elegans, Gladioli, Nigella, and Lilium longiflorum. The newest arrivals are Gaillardias, Scabiosa caucasica, and Sweet Sultans. All Irises are in good condition, and some fine Paeonies are arriving from home growers. Supplies of both these flowers are larger now than for some time past.

GARDENING APPOINTMENTS.

Mr. F. L. Thurston, for the past three years Gardener-Bailiff to the Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, Wrexham, has been appointed Gardener-Bailiff to Captain Frank Burges, Farncombe, Broadway, Worcestershire.

Mr. J. A. Gates, for the past ten years Gardener to Colonel Maunsell Woods, at Shephalby, as Gardener to Mr. Howard Carter, at Ardeley Bury, Stevenage, Hertfordshire (Thanks for 2s. for R.G.O.F. Box.—Eds.)

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p.1

THE GARDENERS' CHRONICLE

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WANTED, JOURNEYMAN (Inside); wages 36/- per week; no bothy.—Particulars, G. E. MASON, Gardens, Cold Overton Hall, Oakham.

WANTED, JOURNEYMAN (experienced). for Herbaceous Borders, etc.—State age, wage (without bothy), to E. ROSE, The Gardens, Michaelstowe Hall, Dovercourt.

WANTED, good SECOND MAN (Inside); thorough knowledge in growing Fruit and Flowers.—Apply, stating wages, with bothy and vegetables, to GARDENER, Milburn, Esher, Surrey.

WANTED, two young GARDENERS, unmarried, to work on farms abroad; climate healthy; passage, food and lodgings supplied; commencing salary £10 per month.—Applications, giving full details, experience and references, to C. F., Box 46, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, smart YOUTH, age about 18, for the Orchid Department.—Apply, stating age, wages expected, with good bothy, etc., to H. G. ALEXANDER, Westonbirt, Tetbury, Glos.

TRADE.

WANTED, a good EXHIBITOR of Decorative Roses.—Apply, stating wages required, experience and references, FRANK CANT & CO., Braiswick Rose Gardens, Colchester.

WANTED, HANDYMAN for Market Nursery.—State experience and wages required, with cottage.—DOIG, Caistor, Lincoln.

WANTED, CLERK, Young Man, for Nursery office; shorthand, typewriting, etc.; must possess a general knowledge of Hardy Trees, Shrubs, etc.—State wages and fullest particulars to HILLIER & SONS, Nurseries, Winchester

EFFICIENT JUNIOR required for Flower Seed Dept. of wholesale London house; must have sound, practical knowledge and competent in the execution of orders.—Write, stating full particulars, experience, age, salary, etc., to G. A. BUNTING & CO., 3-7, Bucknall Street, New Oxford Street, W.C.2.

WANTED, an ASSISTANT LADY FLORIST, good Window Dresser, and well experienced in making up designs; a good and progressive opening for a suitable Florist with good taste and capabilities.—Full particulars of experience, etc., to KING'S ACRE NURSERIES, LTD., Hereford.

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J. T. BARKER, owing to the disposal of the Blenheim Collection of Orchids, is open to an engagement where these plants are a speciality; thoroughly experienced in all branches of the profession; highest testimonials; will be pleased to furnish any particulars required.—J. T. BARKER, Blenheim Gardens, Woodstock, Oxon.

GARDENER (Head); 32 years' experience gained in first-class establishments, both Inside and Out; age 45; married (one child).—A. E., Claremont, Irlam Road, Sale.

GARDENER (Head).—Capt. J. Drury-Lowe, Locko Park, can highly recommend his HEAD GARDENER as above; good manager, Inside and Out; excellent references; age 37; married (one child).—T. SPARROW, Locko Park Gardens, Derby.

Continued on page ix.

KATAKILLA

FOR SPRAYING
FRUIT
FLOWERS
VEGETABLES

"AS EASY AS IT LOOKS."

CERTAIN DEATH TO GREEN-FLY, CATERPILLARS AND ALL OTHER INSECT PESTS.

IN POWDER FORM, READY FOR MIXING WITH WATER. NO DANGER OF LEAKAGE AND LOSS. NON-POISONOUS. NON-IRRITANT.

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IN 2/- CARTONS EACH SUFFICIENT FOR 10 GALLS. WASH.
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Sweet Peas, Carnations, Chrysanthemums, in fact all Plants need

Carmona PLANT FOOD

if they are to produce the blooms that are YOUR IDEAL

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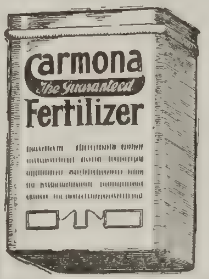

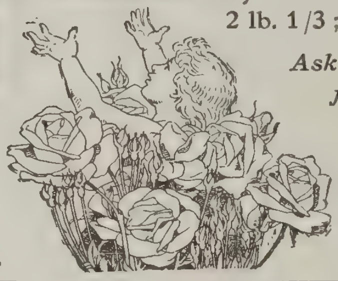

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NO ROOF PAINTING NO PUTTY
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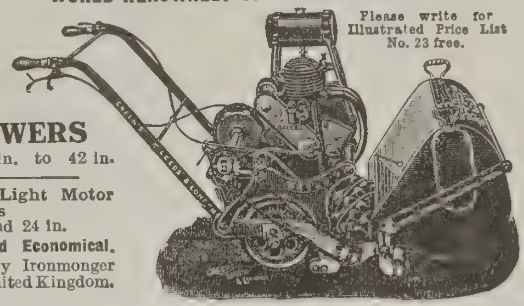

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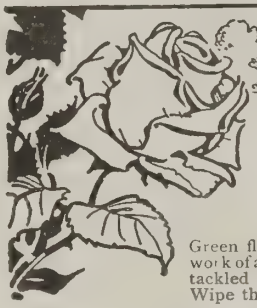

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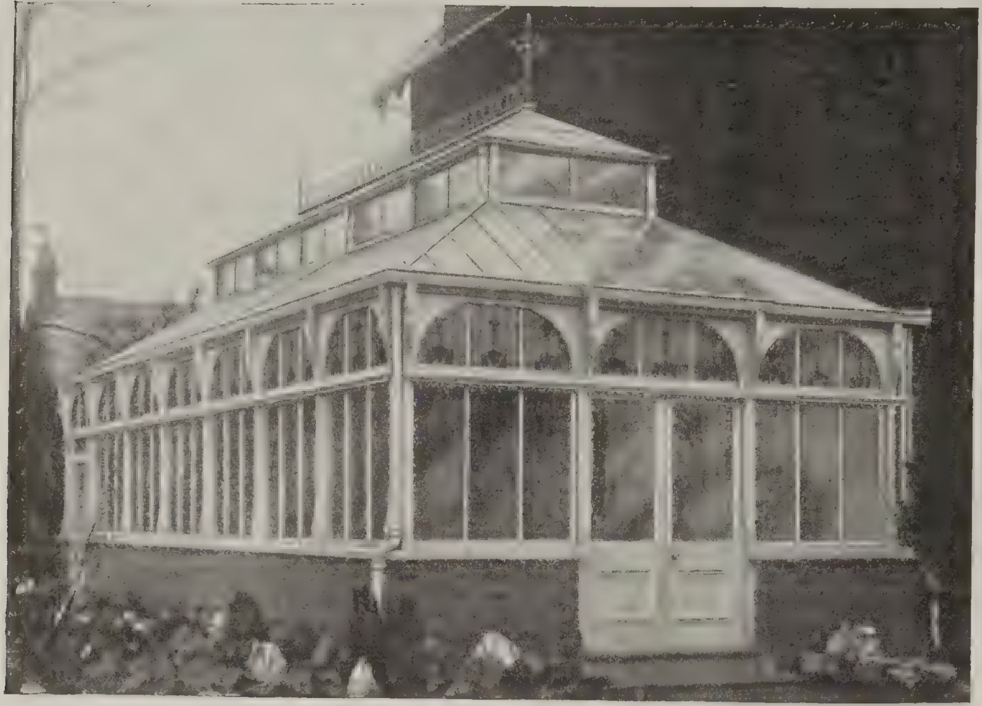

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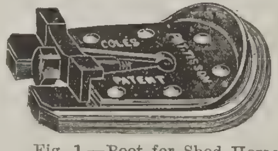

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Fig 2.—NO WELT pattern.

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The increased rainfall of the past twelve months has greatly benefited strawberries. Our beds this year have never looked better and the crop of fruit, given some sun, will be phenomenal. We shall hope therefore to be able to supply vigorous runners in the autumn, and are now booking orders for early delivery.

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A Real Manure. Not a Substitute.
NO STABLE MANURE REQUIRED.

For digging in or as a top dressing. For Kitchen Garden and Herbaceous Borders. We are constantly receiving orders and testimonials from satisfied users both on heavy and light soils. 1 cwt., **17/6** ; ½ cwt., **10/–** ; 28 lb., **6/–** ; per ton, **£16 10s.** All carriage paid.

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The Vine requires a large quantity of Potash for its proper growth and the development of Fruit. Our Manure contains 7 per cent. Potash, 22 per cent. Phosphate, and 4 per cent. Nitrogen, and the results from it justify us in saying that it is the best in the market. The effect on old vines is very marked, it puts new life into them. 112 lb. **27/6** ; 56 lb. **15/–** ; 28 lb. **9/–**. Carriage paid. ½ lb. to the square yard, after thinning.

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Best make Delivery Hose.

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In 60 ft. lengths.

Internal diameter, 2 ply, ½ in., **9d.** per ft., ¾ in. **1/–** per ft.
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Light quality ...	**1/2**	**1/4½**	**1/6**	**1/8**	per yard run.
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Tennis Nets and Poles supplied at Makers' prices.

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60 yards long,	1 yard wide	**5/-**
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Half lengths supplied.

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For Tennis Court Bordering, with Lines Top and Bottom.

30 yards long,	2 yards wide	**20/-**
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Standards for same 10 ft. high, **3/6** each. All carriage paid

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Various qualities.

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ENGLISH YEWS.

Stout Transplanted.
Good Colour and Roots.
3½ ft.—4 ft. high.

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WILMOT'S
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40 to 1000 Gallons.
TUBS to Dip from 20 to 120 Gallons.
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HARD LAWN TENNIS COURTS
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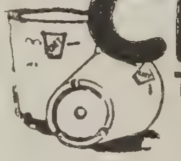

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The Pots that Drain
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"One of the best annuals."
"A real friend."
"A book with a strong appeal to all garden lovers."
"Contains much interesting information."
"Contains a list of big estates . . . in the Kent section alone the list totals 260."
"A valuable up-to-date list of gardeners and their addresses."

Comprises long and useful lists of Gardeners, Nurserymen, Seedsmen, Horticultural Societies, Parks and their Superintendents, etc., etc.

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Full particulars, together with an interesting book on Garden Pests, will be sent to anyone, gratis and post free.

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No. 5 (1 x 20) 21/-
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Bend "A" for spraying undersides of leaves, not included, but extra 1/6.

Only One Abol

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These substitutions are harmful to your plants and our reputation.

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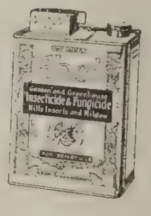
Of Nurserymen, etc., sole prop. and mnfrs., Abol Ltd., 10, Beltring, Paddock Wood, Kent.


Garden and Greenhouse Insecticide & Fungicide Kills Insects and Mildew

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GARDENER (Head or otherwise), trade or private; ten years' refs.; wife good Cook; entire charge.—T. JOHNSON, North Cross, Windsor Forest.

HEAD or good SINGLE-HANDED; four years here, Head of Kitchen Garden, for the late Mrs. Bischoffsheim; previous 12 and 10 years Head; thoroughly experienced other branches; married (cottage).—MARTIN, Woodlane, Stanmore, Middlesex.

HEAD or Head Working Gardener.—The Right Hon. Lord Manners, Avon Tyrrell, can recommend J. LEWIS as thoroughly experienced in all branches of a good gardening establishment; capable manager; excellent testimonials; married (one child).—J. LEWIS, The Gardens, Avon Tyrrel, Christchurch, Hants.

GARDENER (Head Working); life experience in all branches, Inside and Out; excellent references; age 32.—D. W. HARMER, 1, Milton Cottages, Walton-on-the-Hill, Tadworth.

GENTLEMAN personally recommends HEAD WORKING GARDENER; life experience, Inside and Out; good references; age 33; married.—Address, S., c/o 7, Park Street, nr. St. Albans, Herts.

LADY would personally recommend her HEAD WORKING GARDENER; thorough practical, all-round man of highest integrity; greatly interested in Rock, Alpine and Crazy work; over seven years here.—FULLER, Old Rectory Lodge, Wimbledon Park, S.W.19.

HEAD WORKING GARDENER, near London, seeks situation; life experience all branches; excellent references; married; age 38.—W. J. A., Box 43, 5, Tavistock Street, Covent Garden, W.C.2.

GARDENER (Head Working).—Thomas Butcher, The Nurseries, South Norwood, has confidence in recommending a particularly hard-working, clever GROWER, who is desirous of making a change shortly; married (no family) and understands stock and poultry.

GARDENER (Head Working); thoroughly experienced in the cultivation of Fruit, Flowers and Vegetables, Inside and Out; good reference; age 35; married.—D., Hawley, Tuesley Lane, Godalming, Surrey.

GARDENER (Head Working); life experience Inside and Out; age 36; good references; one child.—SPELLER, Gardens, Crown Lane End, Streatham.

J. M. NAYLOR, Esq., very highly recommends his General Foreman as GARDENER (Head Working) of several; life experience in all branches in gentlemen's gardens; excellent testimonials; age 33; married (no family).—CARTER, Leighton Hall Gardens, Welshpool.

SIR CYRIL BUTLER, Bourton House, Shrivenham, wishes to highly recommend G. TYLER as HEAD WORKING GARDENER; age 40; married (three children); fourteen years' experience as Head (eight years at Bourton); reliable and hard-working.—G. TYLER, 10, Sheldon Road, Chippenham.

GARDENER (Head Working), North London; thirty years' practical experience, Vines, Peaches, Herbaceous, Vegetables; age 46 married.—GARDENER, 2, Hollymount, Hampstead.

GARDENER (Head Working) where two or more are kept; exceptional reference; 15 years' experience, gained in up-to-date private gardens; speciality Vines, Carnations, Chrysanthemums, general herbaceous borders, Rose, Fruit, Vegetables, etc.—Please state full particulars, wages, with house and usual allowances, to J. SPEAKE, The Gardens, Caldy Manor, West Kirby, Cheshire.

GARDENER (Head Working); Inside and Out; life experience; 3½ years in last situation; disengaged; married; age 45; good references.—E. ROBINSON, 4, Bedford Gardens, Kensington.

GARDENER (Head Working) seeks re-engagement; life experience, Inside and Out; 47; married (no family); twelve years' reference; or good SINGLE-HANDED. disengaged.—T. IRELAND, Cedars Lodge, Byfleet, Surrey.

MR. G. SCRAGG, Oldlands Hall, Uckfield, Sussex, wishes to highly recommend his General Foreman, J. COTTRELL, as HEAD WORKING of four or five; life experience gained in first-class establishments; excellent references; age 31; married when suited.

GARDENER (Head Working or good Single-handed, with help); life experience; age 31; married (two children); leaving when suited; can be highly recommended.—F. SIMMONS, Stocklands, Cuckfield, Sussex.

GARDENER (Head Working or Single-handed); experience Inside and Out; married; excellent refs.; disengaged.—T. JARVIS, 81, Lancaster Road, New Barnet, Herts.

GARDENER (Single-handed preferred); all-round, practical experience; single; age 30; state wages.—G. R., 18, Oatlands Road, Burgh Heath, Surrey.

EX-SERVICE MAN seeks situation as SINGLE-HANDED GARDENER, or with help; age 31; strong and willing to make himself useful; good refs.; well recommended; married when suited; Northern Counties preferred.—T. A., Box 36, 5, Tavistock Street, Covent Garden, W.C.2.

GARDENER (Single-handed or with help); nine years' experience, Inside and Out; age 28; married; wife willing to help in house.—GOSTLING, Shardeloes Lodge, Amersham, Bucks.

GARDENER (good Single-handed or otherwise); married (1 girl); abstainer; practical life experience; highly recommended.—BUNCE, 19, Castle Road, Sandgate, Kent.

GARDENER (good Single-handed); life experience, Inside and Out; age 49; married (no encumbrance); wife willing to help in house if required; good references.—J. MITCHELL, Crofton Road, Farnborough, Kent.

GARDENER seeks situation; SINGLE-HANDED or UNDER; 5½ years' experience, Inside and Out; good references; age 24; married when suited.—H. BARRATT, Merevale Hall Gardens, Atherstone, Warwickshire.

GARDENER (Single-handed or Kitchen); life experience; age 44.—Full particulars, GARDENER, Box 44, 5, Tavistock Street, Covent Garden, W.C.2.

MARRIED MAN (1 child) seeks situation as UNDER-GARDENER; Kitchen Garden, Pleasure Grounds; eight years' pre-war experience; scythe hand.—GILBERT YOUNG, Council Cottages, Butters Cross, Bucks.

UNDER GARDENER (23, single) seeks situation where two or three are kept; experience Inside and Out.—Fuller particulars from G. LOWE, 3, Church Lane, Windsor, Berks,

GARDENER; married; 30; Under, Single-handed); experienced Inside and Out, poultry, pigs, etc.; wife assist house if required; state wages, etc.—E. F. DYE, 59, Ecclesbourne Road, Thornton Heath, Surrey.

GARDENER (28) (Second); single-handed or with help; cottage; good experience; conscientious worker; excellent references.—HAMILTON, 187, Laleham Road, Staines.

GARDENER, married, age 30, no children, seeks situation; Kitchen Garden and Pleasure Grounds; thoroughly experienced; excellent references; willing to make himself useful.—C. SAUNDERS, Betteswell Hall, near Rugby.

MAN, age 29, seeks situation in Kitchen Garden or Pleasure Grounds; able to take duty; good references.—T. BOULTON, Boconnoc Gardens, Lostwithiel, Cornwall.

KITCHEN GARDENER or Inside and Out; life experience in all branches; age 26; married; well recommended.—B. R. KIDMAN, Cherry Orchard, Chawston, nr. St. Neots, Bedfordshire.

MAN, unmarried, requires situation; Kitchen Garden and Pleasure Grounds.—A. H., 26, Park Lane, Teddington, Middlesex.

FOREMAN (Pleasure Grounds); age 28; experienced in Lawns, Roses and Herbaceous Borders; also motor mower; excellent refs.—GOODCHILD, The Bothy, The Priory, Mill Hill, N.W.7.

FOREMAN or FIRST JOURNEYMAN seeks situation; Inside; ten years' experience, Fruit and Plant houses; age 24 years; good refs.—H. W. P., Box 41, 5, Tavistock Street, Covent Garden, W.C.2.

JOURNEYMAN seeks situation; Outside; 10 years' good experience; age 32; good references; bothy preferred.—R. W. GIDDEN, 5, Dupont Road, Raynes Park, S.W.20.

JOURNEYMAN (21) seeks situation; Inside; seven years' experience, Inside and Out; good references.—Wages and particulars to P. W. W., Box 39, 5, Tavistock Street, Covent Garden, W.C.2.

JOURNEYMAN (25); nine years' experience, Inside and Out; excellent references.—S. P. S., Box 42, 5, Tavistock Street, Covent Garden, W.C.2.

MR. MASON, Cold Overton Hall Gardens, Oakham, highly recommends S. BASS as JOURNEYMAN; good experience; age 23.—G. E. MASON, Gardens, Cold Overton Hall, Oakham.

YOUNG MAN seeks situation as JOURNEYMAN; Inside and Out; three years' experience; good refs.; wages.—Mrs. E. MELTON, East End, Docking, Norfolk.

YOUNG MAN, age 24, with Outside experience, seeks situation, Inside and Out, with a view to obtaining Inside knowledge.—H. J. B., Box 40, 5, Tavistock Street, Covent Garden, W.C.2.

SECOND JOURNEYMAN; Outside; five years' experience; able to take duty; well recommended; age 19; wages required, 30/- per week, with bothy.—Apply, RAYMOND SIMMONDS, The Gardens, Caldy Manor, West Kirby, Cheshire.

YOUTH (age 18) requires situation in Private Gardens; Outside; three years' experience. Please state wages, with bothy.—E. BROOKE, Haughley, nr. Stowmarket, Suffolk.

IMPROVER (21) seeks situation; willing and obliging; Outside experience only; bothy preferred.—C. ELLIS, 20, Victoria Road, Southborough, Kent.

IMPROVER (age 19) requires situation in good-sized garden; three years' experience present place.—MANNING, The Green, Gt. Brington, Northants.

GARDENER-HANDYMAN seeks situation; fifteen years' all-round experience; knowledge of car, electric plant and motor mower; age 30; one child; cottage required; good refs.; disengaged when suited.—SAYER, Ventnor Villa, Stanwell, Middlesex.

LADY, College trained, desires post, Single or UNDER-GARDENER; two years' experience; can drive car.—M. SCANDALE, Brow, Ambleside, Westmorland.

TRADE.

MANAGER, FOREMAN or TRAVELLER; life experience in all branches of Nursery work; good Salesman; good references; disengaged.—20, Elmhurst Road, Gosport.

MANAGER-FOREMAN, thoroughly qualified, desires re-engagement in up-to-date general Nursery; accustomed to managing large quantities of glass; good references.—A. LAWRENCE, 83, Warwick Avenue, London, W.9.

WORKING MANAGER requires post in Nursery, Seed and Bulb business; life experience; age 39; disengaged when suited.—A. B., Box 38, 5, Tavistock Street, Covent Garden, W.C.2.

ADVERTISER (young) seeks responsible post in General Nursery, Inside and Out; three and a half years in large mail-order firm; keen Grower.—Further particulars, PRESTON, Sunnyside, Percy Road, Hampton.

The Gardeners' Chronicle

Scale of Charges for Advertisements.

Advertisements intended for insertion in the next issue MUST reach THE PUBLISHER not later than **TUESDAY, 5 p.m.**

	Ordinary positions.	Facing matter or back cover.
Page	£12 0 0	£15 0 0
½-Page	6 0 0	7 10 0
¼-Page	3 0 0	3 15 0
Column	4 0 0	5 0 0
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(Advertisements at this Special Rate are only accepted direct from Gardeners, etc.)

(Payable in advance.)

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On front page advertisements no discounts are allowed. On a series of other advertisements, if ordered in advance, they are allowed as follows :—

For three insertions, 5%; thirteen, 10%; twenty-six, 15%; fifty-two, 20%.

All series must be arranged to attain completion within twelve months.

Advertisers may have replies to their advertisements addressed to Gardeners' Chronicle Office.

A fee of 1s. is charged for this service, and initials, Box number and our own address must also be included in the number of words paid for.

Cheques and Postal Orders are to be made payable to Gardeners' Chronicle, Ltd., and crossed "& Co."

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Telegrams: "Gardchron, Rand, London."
Telephone: Gerrard 1543.

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Hothouses:—Considerable reductions have been made in the cost of materials and also in labour. Prices have therefore come back considerably, and although still above pre-war level, they are now as low as they are likely to be. Ample stocks of suitable timber are available and the services of our specially trained men are at the disposal of our clients. We are prepared to submit plans and estimates for work in any part of the country and will arrange for skilled representatives advising on proposed undertakings. Please send us your enquiries.

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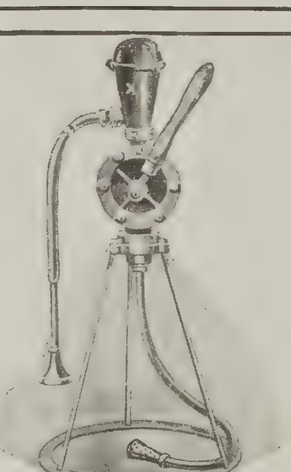

XL PUMPS FOR THE GARDEN

Thousands of these pumps are in daily use and they are quite unsurpassed for wear.

No. 26 XL Set.

Complete on Tripod with Air Vessel for continuous flow, Brass Branch and Unions and 6ft. Suction and Delivery Hose, with Strainer and Hose Clips.

Size	Approx. Galls per hour.	Price complete.	Price XL Pump only.
½in.	240	75/-	19/6
¾in.	400	84/-	21/9
1in.	450	107/6	26/6

No. 12 XL Barrow Set.

A useful combination with Pump, Air Vessel, Suction Pipe, Strainer, and Short Delivery Hose, with Brass Branch Rose and Tap.

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With ½in. Pump:—	99/6	107/9	118/6	132/6
With ¾in. Pump:—	106/6	114/9	125/-	142/-

Brass work extra.

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PLANT HOUSES,
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High-Class Work at Moderate Charges.
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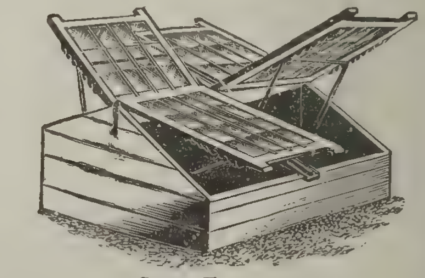

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